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The Journal of the Fire Protection Profession

JANUARY 22, 1930

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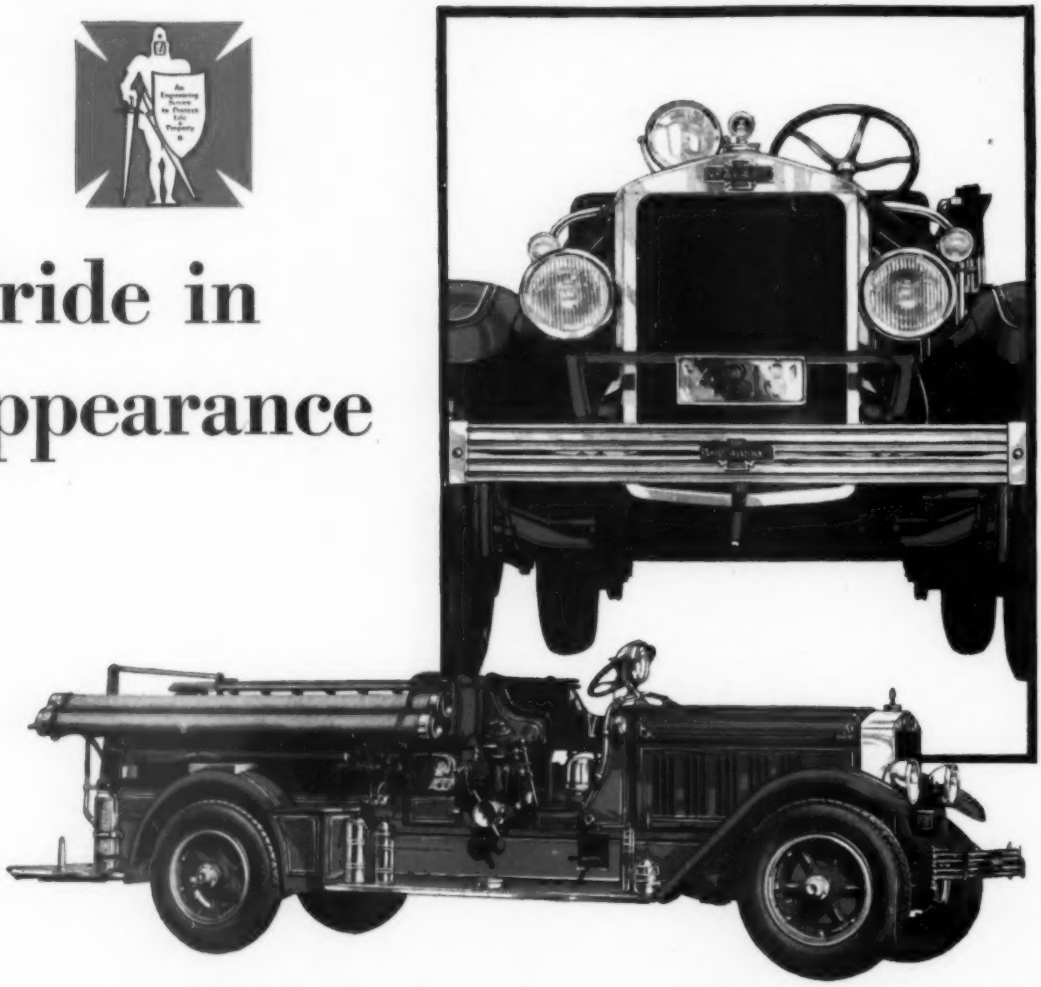

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A Consolidation of FIRE AND WATER ENGINEERING and THE FIRE ENGINEER

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It all depends on what you know

"He who knows not and knows that he knows not,
Is simple—teach him.
He who knows not and knows not that he knows not,
Is a fool—avoid him.
He who knows and knows not that he knows,
Is asleep—awaken him.
But he who knows and knows that he knows,
Is a wise man—follow him."

¶ In nearly every line of endeavor people are largely judged not by what they wear or how they walk or talk, but by what they know. Leadership requires men who know that they know, which is the kind of stuff that every fire chief has to be made of.

¶ Just keep following FIRE ENGINEERING and see if it doesn't give you a following.

The Publishers

CONTENTS

VOL. LXXXIII No. 2

JANUARY 22, 1930

Should Salvage Be Undertaken by Fire Departments? by Edward Reilley 53
Advantages of the Work as Performed by the Municipal Fire Forces—Salvage by Small Departments.

The Leather Factory—A Chemical Plant (Illustrated) 55
Fire Hazards and Losses Due Largely to Substances Employed in Manufacture of Leather Rather Than from the Leather Itself.

The Round Table 57
To What Extent Is Inspection Work Carried On By Members of Your Department?

With the Editor 61
Comments on Current Events and Live Topics by Our Editorial Staff.

Questions and Answers 63
Replies to Questions on All Manner of Subjects of Fire Fighting and Fire Prevention.

Recent Important Fires Specially Reported (Illustrated) .. 67
Three Alarm Fire in East Side of New York City—Burnings of Two Weeks.

Fire Department Activities 74
Newsy Notes from All Over the Country with Matters Firemanic.

Fire Department Improvements 75
Record of Business Activities in the Fire Protection Field.

False Alarms 76
The Humorous Side of the Fire Protection Profession.

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COLUMBIA, S. C.

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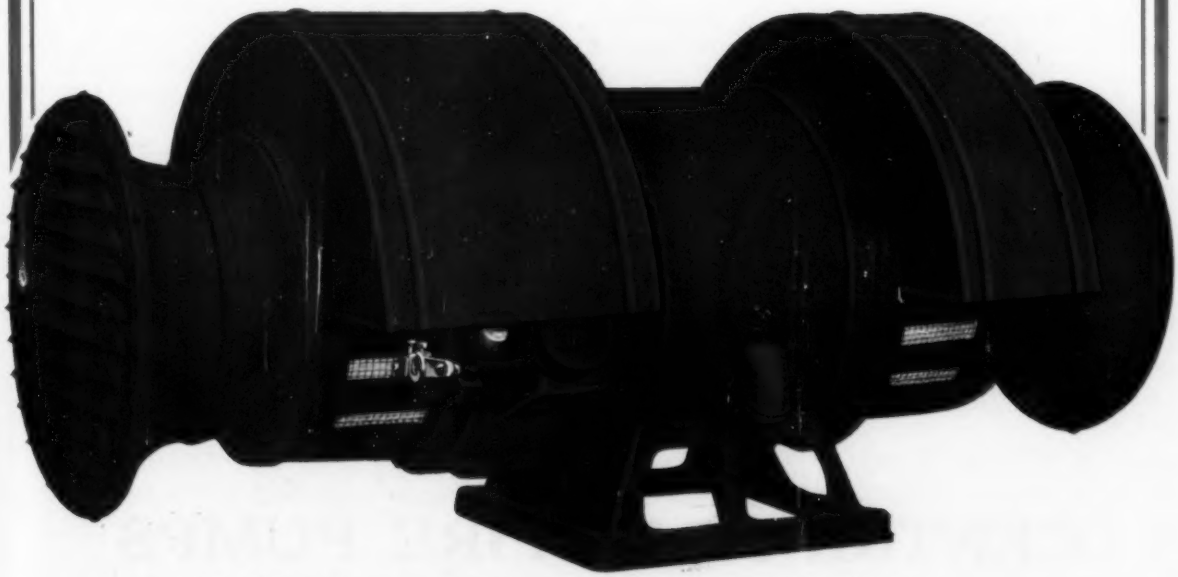

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The Journal of the Fire Protection Profession

VOLUME LXXXIII JANUARY 22, 1930 NUMBER 2

Should Salvage Be Undertaken by Fire Departments?

Advantages of the Work as Performed by the Municipal Fire Forces—Salvage by Small Departments—Avoiding Damage by Water

By EDWARD REILLEY, Chicago Fire Patrol

THE increasing adoption of salvage operations by fire departments throughout the country and the general interest which the subject has aroused among fire chiefs, will make the following paper of particular interest:

Not so many years ago salvage production and fire extinguishment were as foreign to each other as if no relationship existed but during the progress of time, the fireman must realize that fire extinguishment is not his only function. In order for him to be efficient and be a fireman in reality and give value for value received, he should at least have a working knowledge of salvage production.

Salvage by Fire Departments Comparatively New

It is only in the past few years that salvage has received any consideration, comparatively speaking but the fire officials and city officials of some of the larger cities have given it some attention and they have come to the conclusion that it is a necessity, so much so that they have organized and equipped companies for that special work and in small towns and villages wide-awake chiefs see the merit of it and have procured tarpaulins and put them on their apparatus and included salvage work with their other duties. By doing that, they are not doing only what is obligatory upon them to do. Take the position of a fireman or fire chief in a city—it is to save life and property and if you go in with a stream, an inch and a half stream or two and a half inch stream and you extinguish the fire and at the same time you allow a rug, piano and so forth to be damaged, you are not doing your full duty. You are extinguishing the fire—that function is all right but you are not salvaging the man's goods. There are plenty of men that will have their building insured and nothing on their contents.

Imagine the feelings of a man who is paying for a little home and has the furniture paid for that he can never replace for sentimental reasons—imagine his surprise when he goes in after a fire and finds all his furniture intact, no water on it, everything cleaned up, everything set back in its place. It is a cheerful surprise and I imagine it is also gratifying to find a cover on his roof to protect his stuff from the elements, because it would be a waste of energy and time to produce salvage and then leave the goods exposed to the elements to receive further damage. It is not an uncommon thing for us in Chicago—of course, Chicago is a big village—to spread two or three hundred covers at a fire.

Spreading Covers Not All of Work

Spreading covers alone does not constitute our work, because the aftermath has got to be taken care of and that necessitates taking care of the occupants in the building during the time and after the fire. Take lots of places where the whole roof will be off—there will be maybe five or six firms, maybe ten firms, depending on the height of the building, and we put down from 60 to 70 of what we call "catch-alls" or bags on a floor, and ten or twelve chutes, and protect that building for weeks at a time without any interruption of business—there isn't a drop of water gets down there. Of course, it requires a lot of men to do it.

In the early days of paid fire departments, the destruction wrought in extinguishing fires was appalling and of so much concern to insurance companies that steps were taken to salvage property at fires. When a fire occurred an unorganized band of neighbors would proceed to remove household furniture and stocks of merchandise from the burning buildings as well as from those adjoining and this resulted in chaotic conditions at fires which hampered the work of the firemen and caused serious losses. The insurance companies realized that an organized body of men trained in salvage to perform this work in a systematic manner would effect a material reduction in fire losses. Accordingly, such groups were organized and equipped with canvas covers to remove or cover stocks of merchandise and household furniture threatened by fire or water. The efficiency of these corps increased proportionately with that of the fire department until today salvage operations at fires are recognized as an important factor in the reduction of fire losses.

The National Board of Fire Underwriters recently ren-

"The necessity for salvage work is increasing yearly as the tendency of all fire departments is toward heavier streams and higher pressures which consequently cause a larger proportion of water damage. Another contributing factor is the increasing concentration of high values in large buildings."

dered a decision that they would no longer install corps in the larger cities, as such work is essentially a fire department operation and therefore salvage companies should be installed and maintained by the municipalities. They contend that in cities having salvage corps operated by insurance companies, the cost of installation and maintenance is charged to the insuring public while the uninsured derive equal benefits from the service. Since insurance rates are predicated upon losses and all other fire operations are under municipal control, the logic of the National Board's contention is apparent to fair minded persons. A few of the larger cities have installed municipally-owned salvage companies. Some of the smaller cities, not having need for a company exclusively for that purpose, have installed salvage equipment and are practicing salvage on a scale fitting their needs. A practical method for cities of that size is to install a combination rescue squad and salvage company.

Salvage for the Small Department

In a small town that would not, we will say, have enough work to equip a salvage company for that special work alone—it is a good practice to organize and equip a salvage company and a squad combined. We all know the value of the squad and if we had a salvage corps combined with a squad, we would all know in a little while the value of a salvage corps.

With the rapid strides made in improving respiratory apparatus, gas masks and first aid devices in general, the creation of a city rescue company is a practical and worthwhile proposition. Most cities have drowning, electric shock and gas cases and many lives are lost that could be saved by a fast and efficient rescue squad. Many fires also present an opportunity to render first aid or to use gas masks or breathing apparatus. A central company could be organized to take care of both salvage and rescue work covering the city of average size efficiently. Apparatus capable of carrying salvage and rescue equipment can easily be constructed and would prove valuable in a city not having sufficient need to justify the installation of either unit separately.

A company could be organized, say, in the high value district in small places where they would be more likely to get the most calls, at a very little cost and you would only have to have one or two fires in your high value district before they would probably produce enough salvage to pay for equipping that company and to run it for the next five or six years.

Field for Improvement in Salvage Work

While it is understood that we have a large field for improvement in fire prevention, control and extinguishment, an enormous field for expansion and improvement in salvage work is open to wide-awake fire officials. We have a lot of wideawake fire officials that have taken advantage of the knowledge they have gained from different places they have gone to and have taken up salvage operations in connection with fire extinguishment.

The necessity for salvage work is increasing yearly as the tendency of all fire departments is toward heavier streams and higher pressures which consequently cause a larger proportion of water damage. Another contributing factor is the increasing concentration of high values in large buildings. It is generally conceded that of the annual fire loss, approximately twenty-five per cent is consumed by fire while the remaining seventy-five per cent is caused in extinguishment and from other causes after fire. With the annual fire loss of the United States approximately five hundred millions of dollars, it is apparent that the field for salvage is large and its universal practice will pay huge returns in the reduction of this country's fire waste. Fire chiefs who have installed or contemplate installing means for salvage have been making a study of the work as practiced by the corps in existence and are being guided by them in their selection of equipment. The Chicago Fire Insurance Patrol has a school for the training and education of patrol officers and men in this important work. Many of the chiefs in the surrounding territory have taken advantage of the school and have sent their officers to participate in the drills and instruction.

One Way of Getting Rid of Junk

While there is a prospect of an inferno for some individuals in another world, old taxicabs in Philadelphia experience the gigantic fire on this earth. Recently five hundred taxicabs of the Yellow Cab Company reached the "end of the road" and were destroyed by fire. There was a good fire, even for the most critical, while the material lasted.

Avoiding Destruction by Common Sense Methods

Through the recent interest taken by fire officers in salvage, there has come a realization that a tremendous amount of destruction at fires can be avoided by common sense methods of handling streams, of ventilating and overhauling. Officers have learned that throwing water indiscriminately into smoke is poor practice and frequently the cause of unnecessary water damage because smoke often issues from points far removed from the site of a fire. I would say, "Wait till you see the whites of their eyes." Where there is a lot of smoke, we don't know where the fire is.

In this regard it frequently occurs that engine companies come up stairways and have water at hand before the truck has had an opportunity to ventilate. It may be hot and impossible to make the fire door and it is human nature for firemen to open the nozzle in such a place without seeing fire. Should they advance as far as possible without seeing fire, it is reasonable to believe that the fire is at an angle, over a partition or in a place they cannot strike with the stream. In such cases if they avoid the use of water until ventilation has been made, they will be able to advance upon the fire and much unnecessary water damage will be prevented.

Frequently, a fire is discernible from the streets at the front or rear windows of a building. In many cases of that nature the fire has originated in close proximity to the windows and a very small portion of the building or floor is involved. By striking at such a fire from the street, fire escapes or ladders, the stream will extend through that particular floor or room. Should the company attack such a fire from the inside, the stream will strike the fire, pass through the windows or strike the wall with the consequent salvage of the contents not involved in the fire. In other words, fire departments have learned that efficient inside operation of engine companies and up-to-date methods of ventilation are the secrets of effective fire fighting.

Today, salvage efficiency demands more than the spreading of covers over stock and therefore fire officers and men should be trained and equipped with that in view. They should make a study of the various conditions which cause preventable losses at fires and guard against them when the opportunity presents itself.

It is a large assertion to make but there are times when you have actually got to be a civil engineer to centralize and direct the work the way you want it. We have even gone so far as to build a temporary roof where we could find the lumber, in order to protect the people underneath.

Avoiding Water Damage Where Fire Walls and Doors Are Involved

Fires in buildings divided by fire walls, with fire doors on the openings often cause serious water damage to sections not involved in the fire. While the fire doors will effectively withstand the fire, large quantities of water frequently pass through the doors and spread to the sections not involved. When a building of this kind is heavily stocked with perishable merchandise and the conditions of the fire warrant, fire officers can effectively guard against serious water loss by having a truck company open a section of the floor directly in front of the door.

This operation should be started on the first floor, working toward the upper floors. "Catch-alls" or bags constructed with salvage covers should be placed at each opening to catch water dripping from the floors above. The catch-alls act as funnels passing the water from floor to floor until the basement is reached and preventing the spread

(*Continued on page 79*)

The Leather Plant is Frequently a Complete Loss After a Fire

At this fire which occurred in the New England section of the country, the entire plant was leveled despite the efforts of the department. The blaze had secured a firm hold in a large portion of this establishment before the fire department had arrived, and despite the vigorous and efficient work performed by the department, the blaze was beyond the capabilities of the equipment and personnel available.

The Leather Factory Fire—A Chemical Problem

Fire Hazards and Losses Due Largely to Substances Employed in Manufacture of Leather, Rather Than from the Leather Itself—Handling the Leather Plant Fire

THIS article treats the subject of plants engaged in manufacturing leather rather than those devoted to producing articles from the finished product. The first step in leather manufacturing is the tanning operation, which includes many attendant processes. A brief survey of these processes, with particular reference to the chemicals and other materials employed will serve as a good background for the discussion of fires occurring in such establishments.

The early leather treating plants, or tanneries, were small establishments, and were frequently operated by the owner and a few hired men. But with the development of chemical processes of treating leather, tanning has developed to a stage where it now requires large plants, in many cases covering several acres area, to efficiently and successfully carry on the present day processes of leather finishing.

Skins are received at the tannery in a dry, salted or green state, and are classified according to their quality and size. The skins are soaked in vats of water for periods of from one day to several weeks, and borax is sometimes employed in these baths. The object of this process is to cleanse the hides. After soaking, the fat and flesh still adhering to the leather is removed by sharp knives in machines designed especially for this purpose.

Following the cleaning operation, sweating and liming is performed, and the hair is removed from the skins.

The sweating process consists of hanging the skins and hides in warm, damp cellars until skin fibres are separated by decomposition, and the hair is thereby loosened.

Liming consists of laying the hides or skins in solutions of slaked lime; they are removed each day, the lime solution well agitated and the hides then replaced. The hair-removing effect of the lime is increased by the addition of small quantities of arsenic sulphide. After these operations have been completed, the balance of the hair is removed by scraping, or by employment of dehairing machines.

The chemicals employed in this work are thoroughly washed out after dehairing is finished and the hides are then ready for tanning.

The original method of tanning by the use of vegetable compounds is still followed, although chemicals are rapidly replacing the older method. In the tanning, the skins and hides are suspended in a solution of the tanning liquor, and the liquor agitated periodically.

Acids Employed in Tanning*

In the chrome tanning process, skins are placed in a drum containing a solution of sodium or potassium dichromate and hydrochloric acid in water. A subsequent treatment by a solution by bicarbonate of soda and water completes the process.

* Volume 20, Life Articles on Special Hazards.

In some cases the skins are placed in a pickle of salt, sulphate of aluminum, water and sulphuric acid. Upon removal from the pickle, they are placed in the drum which contains the solution of sodium dichromate, water, syrup glucose and sulphuric acid. The final washing process is the same as in the paragraph above.

The alum tanning method is employed for securing light colored leathers. Chemicals employed include aluminum, salt, water, soda ash, flour and egg yolks.

Oil tanning is chiefly applied to the finer grades of skins such as chamois, deer, antelope and buck skin. Cod oil is the only oil that is used for this purpose. The skins are soaked in the oil and worked in a machine at a temperature of 100 to thoroughly impregnate the skins. After this they are piled in a room for drying purposes, and the temperature usually reaches 180 F. After this process is completed the grease is removed, and it may subsequently be used as leather dressing. Finishing processes include skiving, to reduce the leather to the proper thickness; shaving, a skiving process, but producing thinner products; splitting, to separate thick hides into two or more layers; coloring, which is a dyeing process; whitening, a machine process which removes small chips from both sides of the leather; buffing, drying, staking, seasoning, glazing, embossing, drying, removal of oils, bleaching and waterproofing and degreasing.

In many of these operations heavy machinery is required, which has a bearing on the operations in fighting a fire in such establishments.

Patent Leather

Patent leather is made by varnishing ordinary leather. After degreasing, the hide is given a daub coat of linseed oil and lamp black thinned with naphtha. The superfluous coating is then removed and a mixture of linseed oil and a pyroxylin finish applied. The hides are then japanned (baked) and sunned and rubbed with pumice stone. A finishing coat of linseed oil varnish with pyroxylin, or in the case of colored leather, varnish is applied. Japanning, of course, involves the use of ovens.

Hazards

Quick lime employed in leather plants represents a distinct fire hazard, a fact which is well recognized by those engaged in the fire service. Sodium sulphide, a chemical used in the removal of hair, is hazardous from the fire standpoint. The same may be said of caustic soda, which is used in the dehairing operation.

The presence of lamp black, dust from buffing, and the by-products of degreasing all represent hazards from the standpoint of fire department operations. Where a bark mill is incorporated in the plant, to produce ground bark for tanning purposes, another hazard is induced—the dust explosion hazard.

The general fire hazards of a leather plant engaged in tanning and finishing operations depend largely upon the flammability of the type of construction employed. Many of the older plants are entirely of frame construction, while a number of the later ones are of mill construction. Still later types are of fire-resistant design.

Heavy machinery may be looked for in leather plants particularly where embossing is done on a large scale. There are many operations in which machines enter, and as a rule they are comparatively large and heavy. Large open areas are characteristic of this type of establishment. Stock is highly combustible on account of the presence of greases and materials employed in finishing leather. This is particularly the case where patent leather is produced.

Handling the Leather Plant Fire

Obviously streams of large caliber are desirable at fires in plants of this type, both on account of their greater range and their greater extinguishing power. Deck guns are very desirable, if they are available. They enable the department to concentrate large streams at different points without requiring too many men in the operation. Checking a spreading fire in a large plant may be a prolonged operation, and in this work the wagon equipped with deck gun is particularly valuable.

The presence of acids, although they may not be of high concentration, represent a hazard to the men operating around the plant.

Heavy smoke may be expected at leather plant fires due to the quantities of grease, hides, and by-products. For this reason thorough ventilation is essential and should be performed early in the operations, and at such a point as to confine the fire to one section of the plant, if possible. In other words, ventilation should be performed over the hottest part of the fire rather than at such a location as to draw the fire through any uninvolved portions of the building.

Care should be taken to protect men against possible collapse of floors particularly where fire has been burning for some time. In the case of mill constructed buildings as well as other brick buildings with wood joists, walls are apt to be pushed outward when a floor gives way. This point should be remembered by the officer in command at the fire.

Outside of the presence of quick lime, which is now used in a comparatively small number of leather plants, there is no material present which would necessitate the cautious use of water streams.

As noted above, efficient operation depends upon streams with good range, and good caliber.

Sprinkler School Started at Worcester

Supt. William H. Guertin, of the Insurance Fire Patrol, of Worcester, Mass., has established a Sprinkler School where instruction is given to the men of the patrol in the operation of automatic fire devices and the replacement of sprinkler heads.

A complete sprinkler system has been installed in the patrol building for demonstration purposes and Rufus E. Ham, a member of the patrol force, has been appointed instructor.

Members of the Worcester Fire Department, manufacturers, watchmen, and owners of buildings will attend classes. The material for the system was donated by the Rockwood Sprinkler Company.

The operation of dry pipe systems in buildings where there is not sufficient heat to prevent water freezing is explained, also the connections leading to alarm gongs, etc.

The sprinkler school is a very practical idea and will do much to prevent water damage caused by ignorance of watchmen and others as to how to shut off a defective sprinkler.

William H. Guertin

Supt. Guertin is being congratulated for his progressive ideas and efficient management of the Insurance Fire Patrol.

HARRY BELKNAP.

Lamont, Ia., Buys Apparatus—Lamont, Ia., together with the help of a number of farmers, purchased fire apparatus

THE ROUND TABLE

For Practical Discussion of Current Fire Department and Fire Management Problems

MODERN fire department administration does not expect the men to sit around the station and wait for alarms to come in. It requires that every available moment be utilized in preventing fires before they start, and as a major move towards this end, that frequent inspections be made.

In this way fire hazards are corrected, and indifferent persons made to answer to the Courts. Firemen are given an opportunity to become acquainted with every important building in their district.

The question that is treated in this issue is printed in the box on this page. In the box on the following page is the problem that will be discussed in the next issue. Should you have some comments that you would like to make on the next question or if you would like to see treated in this department, write to "The Round Table Editor," FIRE ENGINEERING, 225 W. 34th St., New York.

HERE IS THE PROBLEM

To what extent is inspection work carried on by members of your department?

Are all buildings in the city inspected, and if so, how often are dwellings inspected?

How often are business buildings inspected—how often factories?

Do officers do any inspection work, and if so, what?

The Question

Chiefs of many cities credit the procedure of having frequent inspection with the reduction in local fire losses. Dwellings are only inspected upon request or if special conditions make such a move necessary, but industrial plants, stores and office buildings are visited regularly. The replies received follow:

Arthur Newton, Chief, East Chicago, Ind.: Our department maintains an inspector whose sole duty it is to carry out the inspection work. Our inspection schedule is: Factories and schools, once yearly; theatres, halls, etc., twice yearly; dwellings, once every eighteen months.

Our inspector co-operates with the Department of the State Fire Marshal, the City Building Commissioner and the City Electrical Inspector.

Officers accompany the department's inspector on inspections of factories and schools.

We find that by the employment of an inspector, fire hazards are greatly reduced and consequently fire losses show a great reduction.

James C. Mooney, Chief, Watertown, S. D.: Inspection work is done in this city by members of the fire department. Business buildings, churches, etc., are inspected once a month and if they do not meet with our approval, the owner of such property is notified. In such cases a reinspection is made within five days and as a general rule we find that any existing hazards have been removed. Residences are inspected upon receipt of complaint.

Our men become acquainted with the construction and layout of business buildings by the assignment of specified areas to be covered by inspection each month. In this manner unnecessary confusion is eliminated should fire occur.

Thos. M. Dillon, Chief, Grand Island, Nebr.: All business houses and factories are inspected each month, while dwellings are inspected only on request or complaint. Inspections are made by the captains, who report any hazards discovered to the chief. Such report is followed up immediately by the chief to see that the condition is remedied.

G. W. Hedden, Commissioner of Fire, Buffalo, N. Y.: The inspection system we employ here is different from most cities due to the fact that we have no fire prevention bureau.

The city is laid out into nine battalion districts, which districts are sub-divided according to the number of engine and truck companies in the battalion. Members of our department work the two-platoon system, swinging over every eighth day. These eight days are what are called "Long Days" and on such days the captains and lieutenants of each company go out into their districts and make inspections of buildings, with the exception of dwellings. Dwellings are inspected only on complaint. In this way the entire city is covered.

When inspections are made they are very thorough. Buildings are gone over from cellar to attic. Locations of stairways, fire escapes, exits, etc., are noted; the fire extinguishing apparatus, such as standpipes, hose reels, chemical extinguishers, sprinkler systems, etc., are inspected. The locations of valves controlling the sprinkler systems, pumps, etc., are all noted. In this way all the officers in the department become familiar with the buildings located in their districts.

Advice is given and recommendations made, where necessary, on fire hazards, such as storage of stock, hazards from heating, electricity, accumulation of rubbish, etc. When violations are found and there is cleaning to be done, a follow-up inspection is made a few days later. Where violations of ordinances are not taken care of as recommended, a summons may be issued, and prosecuted by the Corporation Counsel of the city.

Business buildings and factories are inspected approximately once in three months. Officers only do the inspection work, and company officers perform all regular inspections. Battalion Chiefs make special inspections and investigate complaints, mostly on orders from the Commissioner of Fire, who is the department head.

A. E. Anderson, Chief, Bethlehem, Pa.: We have two men who devote practically all of their time to the inspection of buildings and their contents. Our inspection includes tenement houses, business places, factories, theatres, etc. Private homes are inspected upon request, or complaint of hazardous conditions existing in same. These inspections are made about four times a year.

G. P. McGillen, Chief, Appleton, Wis.: A Fire Prevention Bureau is maintained by the fire department under the supervision of the chief. A regular inspector is appointed whose duty it is to inspect all business and manufacturing establishments every three months, and all residence property every six months. Officers also do inspection work in the business and manufacturing districts twice a year.

H. H. Wardleigh, Chief, Ogden City, Utah: Inspection work is carried on by only one man of this department, a deputy fire marshal. After making inspections, he submits a written report of his findings. These reports are filed and the members of the department have access

to them at all times. We have a file where records are kept of each business. In this way it can be readily seen just which places are lax in protection and preventive measures. The places that are slow in correcting hazards and are rather untidy in housekeeping are watched constantly. The condition of such places is continually called to the attention of the owners or managers in charge of such establishments.

We have only one man detailed to inspection work for our department is seriously under-manned.

All buildings, with the exception of dwellings, are inspected every three months. The business buildings are inspected about every month. Private dwellings are inspected only upon request or complaint.

No inspection work is carried on by officers of the department. As mentioned above, the deputy fire marshall is the only one who make inspections.

W. E. Van Meter, Chief, Bakersfield, Cal.: Our entire city is divided into districts: District one, the main business or high value section; district two, the manufacturing and minor business section; district three, all residential sections.

Inspection work is carried on continuously in districts one and two. Permanent records are kept of the work in these districts. Each building has a record of all occupants, special hazards, etc., of value to the fire department. All officers are required to know the vital points of buildings in their respective districts.

All buildings, excepting dwellings, are inspected on the average of about three times a year. Dwellings are only inspected upon complaint or request.

A residential inspection tour, covering vacant lots, alleys and premises of all dwellings, is made each year. One man is detailed to this work for a period of five months.

The inspection work is carried on by the Fire Marshal and one assistant.

A. J. Baker, Chief, Lewistown, Mont.: Inspection work is a matter of routine in this department. Four officers, namely assistant chief, captain and two lieutenants, alternate on daily inspection detail in the business district. Inspections are made in the residential section only on request by the owner or occupant. A detail of one hour a day will cover the business district in thirty days. This makes about twelve complete inspections a year.

Our system of inspection is uniform and inspectors are instructed to sell the idea of self-protection and co-operation to the people. They are instructed not to use threats or to refer to law or penalty.

Our inspection system is divided into three stages. Inspectors use a reference book. A card index system is used only by the head of department.

The three stages are as follows: First, the men are directed toward a general clean-up and removal of undesirable material. Second, they endeavor to keep the business man interested in seeing that his property is clean and that defects in the heating and lighting equipment are eliminated. And third, they take note of building defects, exposures and ordinance violations.

Inspectors are instructed to report extreme hazards and complicated conditions immediately. These are taken care of by the head of department. All other conditions are handled by the inspectors verbally, with the exception of making a note in their reference book as to the disposition of the case.

Fred S. Bullent, Chief Rensselaer, N. Y.: I personally make inspections of buildings, such as stores, factories, schools, etc. This department is entirely voluntary with the exception of eight full time drivers. The chief and two assistant chiefs are on part time, but are subject to call from their work at any time.

Inspections are carried out on a monthly basis. I am a firm believer in fire prevention. Dwellings are not inspected so often. However, cellars of dwellings are inspected from time to time. So far I have received excellent co-operation along this line from the public.

At certain times I conduct what I term "the big inspection period." At this time I have one or two drivers or officers of the volunteer companies assist me in inspection work. This familiarizes them with layout of the different buildings.

Richard Kelley, Chief, Davenport, Ia.: Our inspection work is carried on by members of the department throughout the entire year. We do not inspect dwellings, but endeavor to inspect business buildings at least every thirty or forty days. This latter procedure applies also to factories, unless some hazardous condition is reported, and in which case a reinspection is made about two weeks after same is reported. We find this reinspection to be of considerable help in the correction of hazards. As inspections are made, an inspection blank is filled out, one copy going to the office of the fire warden, one to the fire chief, and the third is held in the files of the commanding officer making the inspection.

Officers inspect all business and factory properties in their districts at least twice a year, as well as take their turn at same as do the men of their company.

HERE IS THE PROBLEM FOR THE NEXT ISSUE

Do you train the members of your department in first aid work?

Do you consider such training essential to the modern fire department?

What equipment do you consider necessary in fitting out the department for first aid work?

J. B. Gordon, Chief, Newport News, Va.: Inspection work is carried on continuously. All mercantile and factory buildings, theatres, etc., are inspected throughout each month.

Officers do inspection work the same as other members of the division, inspections being made from a fire prevention safety standpoint.

Our plan of inspection is carried on as follows: Working on the two platoon system, keeping half of the men off duty, in town for inspection purposes and subject to call at any time. Each man is given a certain district to inspect, and is required to make a report of all inspections and hazards, if such are found. During the Christmas holidays the mercantile establishments are inspected each day, owing to the fact that an exceptional amount of packing paper, straw, etc., is being handled.

All hazards found, if not possible to correct, are immediately reported to the assistant chief, who, in turn, makes an additional inspection and proper steps taken to have same corrected.

J. F. Sullivan, Chief, Fall River, Mass.: Inspection work is carried on throughout the year. Dwellings are inspected upon complaints or suspicion, while business buildings are inspected regularly and factories periodically.

Men assigned to inspection duty report to their company officer, who, in turn, calls the attention of the offending party to conditions as found, if, in his judgment, they constitute a hazard. Any hazard of a serious nature is reported by the company officer to his superior. A final report is submitted to the chief, who may take the necessary steps to have any condition remedied within the law.

Louis Bausch, Chief, Newark, Ohio: Our building inspection is divided between platoon 1 and platoon 2, each shift making an inspection every two weeks. No dwellings are included. The work is done by the rank and file of the department and comprises all buildings in the mercantile area. If hazardous conditions are reported, the chief makes a follow-up inspection to see that same has been removed. Monthly visits are made to schools, churches, hospitals and factories by chief and captains. Weekly visits are made by the chief to buildings and stores in the business district.

Failure to remove an existing fire hazard when an order is given results in it being reported to the deputy state fire marshal, who applies the needed pressure to gain results. An annual warning is given to residents regarding accumulation of rubbish in the home and the necessity of inspecting chimneys and heating plants prior to the winter season.

Russell Dyche, Chief, London, Ky.: I consider no other phase of fire department work more important than

(*Continued on page* 71)

How San Francisco Fought Fires in Its Early Days

The City of the Golden Gate Suffered from Its First Flimsy Construction—Conflagrations Caused Formation of Fire Department

By C. W. GEIGER

SAN FRANCISCO began its history in a baptism of fires. Hardly had the gold rush of '49 assembled a nondescript collection of wooden houses, tents, the hulks of ships, anything, in fact, to afford protection to the ever-increasing multitudes gathering from the four corners of the earth, but a disastrous fire wiped out the most important part of the new city.

Burning of the Bancroft Building in San Francisco on May 31, 1886

Six fires in the first two or three years of her history caused the people to make extraordinary efforts to protect themselves against their recurrence. It was from this determination that the present efficient fire-fighting force sprang.

New and better buildings; more precautions taken concerning the use of fire; the widening of streets; the purchase of fire apparatus, and finally the impressment of all citizens to fight a blaze and the organization of fire companies were among the earlier steps taken. Later on cisterns were built at strategical points.

The first fire of any importance occurred in January, 1849, when the Shades Hotel was destroyed. In the June following, the ship, "Philadelphia," was burned as she was preparing to sail for Sandwich Islands. The inflammable material of which the town was built and the afternoon winds made many thoughtful people realize that if a fire ever started nothing could stop it.

The First Large Fire

It was not until December 24, 1849, however, that this fear was realized. The following account of this is found in the Annals of San Francisco:

"This morning, about six o'clock the awful cry of fire was raised in the city, and in a few hours property valued at more than a million dollars was totally destroyed.

"The fire began in Dennison's Exchange, about the middle of the eastern side of the Plaza, and, spreading both ways, consumed nearly all that side of the square, and the whole line of buildings on the south side of Washington street between Montgomery and Kearny streets.

"This was the first of the great fires which devastated San Francisco, and it was to be speedily followed by still more extensive and disastrous occurrences of a similar character. Scarcely were the ashes cold when preparations were made to erect new buildings on the old sites, and within a few weeks the place was covered as densely as before with houses of every kind."

The Second Large Fire

Six months later, on May 4, 1850, the second great fire occurred. It began at 4 o'clock in the morning and by 11 o'clock three blocks of the most valuable buildings in the city had been destroyed, with an attendant loss of property estimated to be $4,000,000.

It was supposed to have been of incendiary origin. Several persons were arrested, but no formal trial took place.

An ordinance was passed immediately after this fire that any person who refused to assist in extinguishing the flames or to assist in removing goods should be fined not less than $5 nor more than $100.

Another ordinance provided that every householder should keep six water buckets always in readiness for future fires.

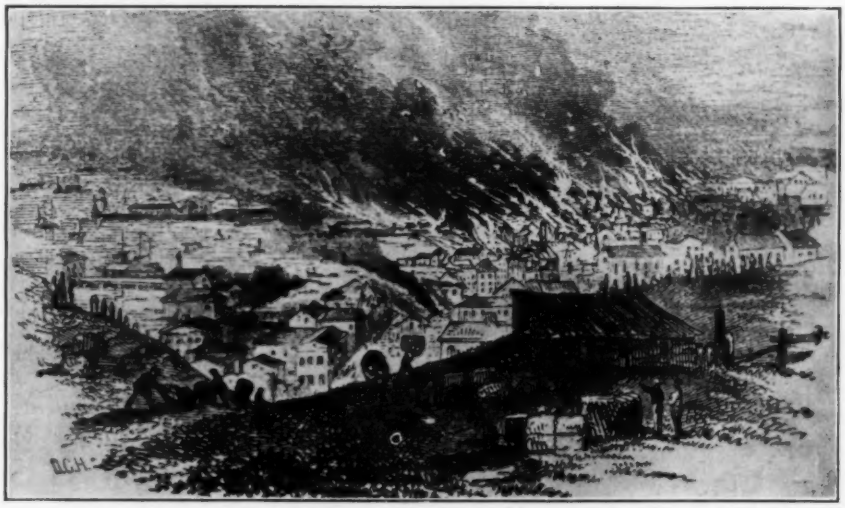
Defective Chimney Causes Third Big Blaze

One month later, on June 14, the third great fire started. It broke out at 8 o'clock in the morning from a defective chimney in a bakery. The wind was blowing and in a few hours the blocks between Clay, California and Kearney streets to the water were one mass of flames.

Experience had taught the people that although the cost of fire-proof brick structures was much greater at first than the cost of the old wooden ones, yet in the end they were cheaper and better. The style of architecture began to change for the better. More and more fire companies began to be formed.

The Fourth and Fifth Great Fires

The fourth great fire broke out about 4 o'clock in the morning of September 17, 1850. This time the loss was estimated to be only $250,000. The blocks burned over were between Dupont, Montgomery, Washington and Pacific Streets. But owing to the fact that this district had been



An Old Newspaper Wood Cut Showing the Great Fire in San Francisco on May 4, 1851

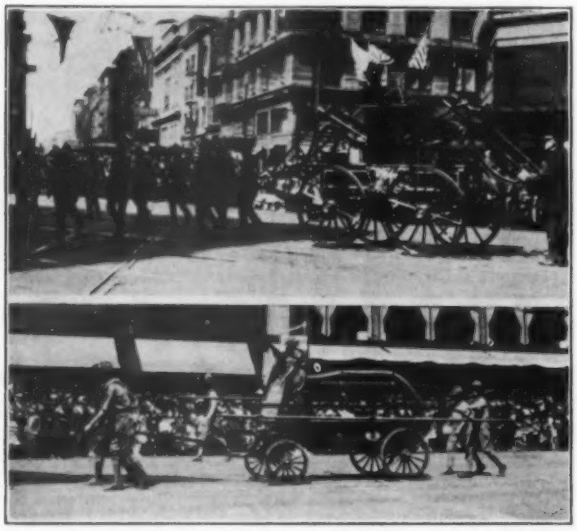
burned over at a previous fire, they were only one-story buildings in the main that were destroyed.

On October 31 of the same year the City Hospital was destroyed. It was supposed to have been the work of an incendiary.

On the evening of December 14, 1850, just a year from the first great fire, the fifth great fire, not considering one or two smaller ones, started. The total damage done was estimated at $1,000,000.

Sixth Fire Causes Loss of $12,000,000

On May 4, 1851, the anniversary of the city's second fire, the sixth great fire started. It was estimated that more



Two Old Hand Fire Engines of the San Francisco Fire Department

damage was done at this one than all of the preceding ones. For eight months the citizens had enjoyed comparative immunity. Then, at about 11 o'clock on the evening of May 3, a fire started in a paint and upholstery store on the south side of the Plaza. This again was considered to have been of incendiary origin.

The wind was blowing and at first carried the fire down to Kearney, then along Kearney for several blocks. Then the wind shifted and blew from the south and carried the fire into the main business district. The wind increased to the ferocity of a hurricane, the planked streets burned. Street after street went up in smoke and the reflection is said to have been seen one hundred miles out at sea.

The fire burned for the period of ten hours. Between 1,500 and 2,000 houses had been destroyed. Eighteen blocks in the main business district had been consumed. Only five of the brick buildings on Montgomery street escaped. The burned district extended about three-fourths of a mile from north to south and a third of a mile from east to west. The damage was estimated at $12,000,000.

Another Incendiary Fire

On June 22, 1851, hardly six months after the previous one, another fire started. Again incendiaries were believed to be the cause. It began about 11 o'clock in the morning and the wind drove the flames in every direction. It began on Powell street and ten full blocks and six parts of blocks were destroyed. The City Hall, purchased for $150,000 and improved at great cost, was destroyed. And the loss was estimated at $3,000,000.

The Jenny Lind Theatre, the property of Thomas McGuire, one of the most valuable buildings, was destroyed, which was the sixth time the owner had suffered by fire and lost everything.

They began to build houses now of walls two and three feet in thickness of solid brick to try and make them fireproof.

It is small wonder that the citizens, after these terrible disasters within the space of less than two years, began the formation of a fire department that it was believed would successfully cope with any blaze. How well that function has been performed the city itself can testify.

Description of a Great Fire

No city in the world was ever thrown together in such haste as San Francisco. People congregated by the thousands almost overnight. Her history is unique.

A realistic description of the great fire of May 4, 1851, is contained in Frank Marryat's "Mountain and Molehills." And because of the effect of this conflagration on the people, and how it had its influence in efforts to make the department ever more efficient, the account is quoted in full:

"On the 3d of May, at 11 o'clock in the evening, the fire bell again startled us; but on this occasion the first glance at the lurid glare and heavy mass of smoke that rolled toward the bay evidenced the fact that the fire already had a firm grip on the city.

"The wind was unusually high, and the flames spread in a broad sheet over the town. All efforts to arrest them were useless; houses were blown up and torn down in attempts to cut off communication; but the engines were driven back, step by step, while some brave firemen fell victims to their determined opposition.

"As the wind increased to a gale, the fire became beyond control; the brick buildings on Montgomery street crumbled before it; and before it was arrested over 1,000 houses, many of which were filled with merchandise, were left in ashes. Many lives were lost, and the amount of property destroyed was estimated at two and a half million pounds sterling.

"No conception can be formed of the grandeur of the scene, for at one time the burning district was covered by one vast sheet of flame that extended half a mile in length. But when the excitement of such a night as this has passed by, one can scarcely recall the scene. The memory is confused in the recollection of the shouts of the excited populace; the crash of falling timbers, the yells of the burned and injured; the clank of the fire brakes; the hoarse orders delivered through speaking trumpets; maddened horses released from burning livery stables plunging through the streets; helpless patients being carried from some hospital, and dying on the spot, as the swaying crowd, forced back by the flames, trampled all before it; explosions of houses blown up by gunpowder; showers of burning splinters that fall around on every side; the thunder of brick buildings as they fall in a heap of ruin, and the blinding glare of ignited spirits.

"Amidst the heat that scorches, let you go where you will, smoke that strikes the eyes as if they had been pricked by needles; water that, thrown off the heated walls, falls on you in a shower of scalding steam, you throw your coat away and help work the engine brakes, as calls are made for more men.

"At daylight you plod home, half blind, half drowned, half scorched, half stunned, and quite bewildered; and from that

Traffic Problems in San Francisco in 1869

time on you never care to recall one-half of the horrors you have witnessed."

Early History of the Fire Department

The first steps taken towards establishing a fire department in San Francisco date from Christmas, 1849, the day after the first great fire. In the Annals of San Francisco the following facts are gleaned:

"Meetings to consider the formation of the department had

(*Continued on page 70*)

WITH THE EDITOR

A Public Spirited Act

The officers and men of the Detroit, Mich., Fire Department deserve the highest commendation for an act of unselfish public spiritedness performed by them this month. The Board of Fire Commissioners recently voted a raise in pay for the firemen of 5 per cent. of their present salaries. As soon as this advance was made known to the firemen they met and decided to ask the Commissioners to rescind the action taken, asking that the money so appropriated be used to relieve unemployment and distress among the poor of the city.

This noble act on the part of the city firemen involves a sum amounting to about $215,900. The men suggested that this sum be used to provide means of employment for those out of positions and thus relieve their distress and provide means for their families' support.

To appreciate fully the significance of this act on the part of the Detroit firemen, it must be remembered that the scale of remuneration is none too high. This ranges from the pipe and ladder men, who receive at present $2,400 per annum, to the chief, whose salary is $7,500.

These men have set a high standard of public spirited self sacrifice for others to follow.

Risking Valuable Documents

It seems strange that valuable—and in many cases, unreplaceable—documents of the United States Government at Washington, D. C., are still housed in buildings that are inflammable and that no attempt has been made to place them beyond the danger of destruction by fire. In two recent instances such documents have been exposed to annihilation by the flames, and only by good luck and the work of an efficient Fire Department, have they been saved from utter destruction.

If the two fires—one in the Capitol and the other in the White House—will serve to spur the authorities to action in speeding the erection of a proper fire proof building to house the invaluable records of the government, they will prove to have been unmixed blessings.

Certainly, it is inexcusable that such documents are still allowed to remain on shelves, exposed to the flames and not even placed in metal files or containers. While some of the papers thus exposed are of little moment and are simply routine documents whose loss would cause little embarrasment, many others are of inestimable value from the historical standpoint, and will increase in worth as they do in age. For these, some adequate provision should be made, so that they may be placed where the risk of their destruction by fire is not always imminent.

The most logical provision of this kind would be the erection of a suitable fire proof archive building, that would be of ample size and proper construction to safely house all of these precious papers, and yet allow them to be accessible to those authorized to examine them at any time.

The money appropriated for such a structure would be well spent and such an expenditure should at once be authorized by Congress, so that there will be no delay in taking care of the precious records of our government, the loss of which would be disastrous from the historical and every other point of view.

Fire Prevention and Fire Preparedness

We hear much in these days on the subject of fire prevention and the necessity for "extinguishing the fire before it starts." This is well. Too much emphasis cannot be laid upon precautions against fire and for the necessity of cleanliness in housekeeping to prevent risk. Undoubtedly, the more the public is impressed with the idea of practical fire prevention, the greater will be the reduction in the fire loss of the country.

However, in the stressing of this emphatic teaching, there is always the danger of forgetting the other side of the question. We have not yet arrived at the millenium, where all of the material in use in our daily lives is absolutely unburnable—probably this period in our civilization is still many years away. And until this time arrives, there will always be unavoidable fires. Therefore, the other side of the question is fire preparedness.

This entails the provision of every means available for fire extinguishment. Our fire departments are now scientifically equipped with the latest apparatus and tools for this purpose. Our firemen are—by means of careful and scientifically arranged drills and training—proficient in the work they are employed to do. Even in the smaller towns, fire alarm systems are being installed which enable the local fire forces to be upon the spot a few moments after the alarm is given. What then is lacking?

This brings us back to our original subject—fire preparedness. Not only must this preparedness be inculcated in the minds of our firemen. It must be taught to the public at the same time that the people are instructed in fire prevention. The citizen should be taught to think of fire and the fire alarm in the same breath—the one should automatically suggest the other. He should be made to realize that not a moment should pass after the discovery of a fire—no matter how insignificant—before the alarm should be transmitted to the fire

department by means of the nearest box or some other means, as provided.

He should also be taught, as his second line of defense against fire, to always have within reach in his home or business establishment efficient hand extinguishers of an approved type and placed in positions where they will be of the greatest service in case of fire. He should also know how to keep these extinguishers in proper condition for instant use at all times, for one of these devices allowed to become inoperative through neglect is worse than none at all.

At the same time he must remember that this is the second line of defense, and that his first thought must be the city fire department, for a large proportion of the large fires can readily be traced to the attempt of the individuals to extinguish them without calling upon the help of the department, and the fires in consequence getting beyond control.

So, these two—fire prevention and fire preparedness—must go hand in hand. The one without the other is badly handicapped and can accomplish little in reducing the fire losses—together, they must form a power that will do much to reduce such losses and save us from the useless economic waste entailed in burning up so great a proportion of our natural resources.

Cribby Appointed Chief of Somerville

With the appointment of Deputy Chief Joseph A. Cribby as head of the fire department of Somerville, Mass., ended a long drawn out contest for the position made vacant by the resignation of Chief Sewall M. Rich last September.

Chief Cribby was appointed a call member October 1, 1892 and became a permanent member February 12, 1896. On September 1, 1899 he was promoted to lieutenant and on November 3, 1911 was made second assistant chief. Appointment as district chief was made October 15, 1920 and deputy chief, July 23, 1921. He was born at Cape Elizabeth, Me., August 22, 1864.

ELWIN BECKWITH.

New Orleans Firemen Have Christmas Dinner

The men of the Second Platoon, New Orleans, La., Fire Department, were on duty for twenty-four hours including Christmas Day, and in consequence decided to have a real Christmas Dinner, with turkey and all the fixin's, a tree and all that goes with it, including a radio to supply the music. In the illustration, in the center, is Acting Mayor T. Semmes Walmsley and Chief John M. Evans, who were the guests of honor. The companies quartered in the station are: Chemical No. 1, in charge of Capt. G. Sumners; Water Tower No. 2, Capt. J. Hilderbrand; Squad No. 1, Capt. J. B. Perigoni; Engine No. 29, Capt. F. Brand; Hook and Ladder No. 4, Capt. M. Gienger, and Assistant Chief of Second Fire District J. S. Timlin.

INDEX TO VOLUME LXXXII

The Index to Volume LXXXII, FIRE ENGINEERING, from the January 9 to the December 25, 1929, issues, is now off of the press, and will be mailed to readers on request.

I. A. F. C. TO CONDUCT SCHOOL FOR TRAINING INSTRUCTORS

First Concrete Move Inaugurated by President Ralph J. Scott—Designed for Training Teachers for Short Fire Courses

A NINETY-DAY fire college for training regional fire school instructors will be conducted by the Los Angeles Fire Department under the supervision of Chief Ralph J. Scott, in accordance with the plan adopted at the International Association of Fire Chiefs Convention held in Birmingham, Ala.

The school will be held from March 31 to June 28 for accredited representatives of fire departments possessing credentials from the chiefs of departments, commissioners, mayors, city managers or other proper officials. Classes will be held five days a week. The men attending this course will report at all sessions and will conform to the rules and regulations of the department. No tuition will be charged.

Arrangements will be made to secure reasonable rates at conveniently located hotels for the students, or accommodations will be provided in fire company quarters for those desiring to be housed in stations. If the latter method is preferred, it should be indicated at the time the application for entering the school is mailed.

All applications should be mailed to Chief Ralph J. Scott, 217 South Hill Street, Los Angeles, Cal., not later than March 24.

Those in charge of the school hope that the man selected by a local department will, in each case, be one who has been chosen for his knowledge, ability and initiative, in order that only those men who are energetic and progressive will compose the classes. This suggestion has been made because the men who complete the course will develop into regional instructors.

CORRESPONDENCE

Use of Hand Extinguishers

To the Editor:

I was very much interested in the Question and Answer appearing in this week's number concerning the effects of carbon-tetrachloride compound as employed in conjunction with fire extinguishers. Somewhat the same ground has been covered before in other literature, and in all cases, it seems to me, one salient feature has been overlooked, and that I desire to bring forward at this time with your assistance.

Admitting that this gas has a somewhat deleterious effect, and can cause temporary suffocation, or at least, confusion and dismay, somewhat more readily and more positively than any other materials employed in fire extinguishment, and even without coming in contact with burning materials, does it not seem that this type extinguisher is a very undesirable one to install for the employment by young and untrained women, especially, such as must needs be the first to have occasion to use them in such institutions as schools, hospitals, etc.? Another point in their disfavor is that it is not generally understood that this type should be tested regularly, and many, if not most such instruments are found unfit for service.

Yours cordially,

Nyack, N. Y. WILLIAM P. BABCOCK.

City Map to Show Location of Fire Alarm Boxes—The new city map being prepared in Green Bay, Wis., is to show the location of all fire alarm boxes in the city.

Fire Engine Used as a Hearse—Fire apparatus of Long Branch, N. J., was used as a hearse in carrying the body of the only woman member of the department to the cemetery. Eight former chiefs of the fire department were pallbearers.

Questions and Answers

NOTE—Readers are invited to send in questions, which will be answered in the order received. Names are omitted from questions unless otherwise specified

The Pumper Problem Again

To the Editor:

In the Question and Answer Department of the Nov. 13th, 1929, issue the problem was given:

"Two lines of 2½ in. hose, each 200 feet in length, are stretched from an engine to a siamese connection from which 50 feet of hose is laid up a ladder to an elevation of 50 feet (apparently the siamese is a short distance up the ladder because the nozzle employed is 50 feet above the ground). A 2½ in. nozzle is used. 90 pounds pressure is wanted at the nozzle.

"What will be the discharge?

"What pressure will be required at the engine?

"If 750 gallon pumpers are used, how many will be required?"

The originator of the problem, "F. C. L.," mentions 2½-in. nozzle, and in your solution you used 2-in. nozzle as the size. This would naturally affect your answer for discharge and also for engine pressure.

Taking the problem as a whole, I believe that it is a quite impossible layout, don't you? Naturally, the engines would have to be placed in tandem to boost up such a pressure, and in my experience, I am of the opinion that there are very few makes of hose that would stand up under this exorbitant pressure, that is, taking for granted that brand new hose is used.

Below I have given what I believe to be the correct answer to the problem and I would like to know through your columns whether this solution is right, particularly for the answers.

Solution: First combine the two parallel lines of 2½-in. hose into a single line. The factor for this conversion is 3.6.

$200 \div 3.6 = 55.6$

Then change the 3-in. hose to 2½ in. Factor for this purpose is 2.6

$50 \div 2.6 = 19.2$ feet of 2½-in. hose.

The entire layout is then equivalent to $55.6 + 19.2$ or 74.8 feet of 2½-in. hose.

Formula for finding engine pressure is E.P. = N.P. x (1.1 + K.L.)

$E.P. = 90 \times (1.1 + 3.9 \times 1.496)$

$= 90 \times (1.1 + 5.8344)$

$= 90 \times 6.9344$ or 624.1 pounds.

Then the back pressure has to be taken care of, as:

$B.P. = .434 \times H$

$= .434 \times 50$ or 21.7 pounds

Then allowing 5 pounds loss in pressure due to siamese fitting we have $624.1 + 21.7 + 5$ or 650.8 pounds as true engine pressure to give us 90 pounds pressure through the hose layout as given at a 2½-in. nozzle.

Due to the fact that there was no factor given in my records for a 2½-in. nozzle, I found it by using the formula $K = \frac{D^4}{10}$ or 3.9

Discharge is found by formula

$G.P.M. = 29.7\ D^2 \sqrt{P}$

$= 29.7 \times 2.5 \times 2.5 \times 9.48$ or

$G.P.M. = 1754$

Using the theoretical rule to find the discharge of a 750 gallon pumper working at 650.9 pounds pressure we have $750 \times 120 \div 650.8$ or 138.3 gallons.

Then the number of 750 gallon pumpers that would be needed to pump 1754 gallons at 650.8 pounds pressure would be 13.

Yours respectfully,
E.T.P.

Editor's Comment: The calculations as presented by yourself are substantially correct.

While the problem is impractical, that is, it is not a problem which would be encountered in any fire department work, still, it shows very clearly the capabilities of pumpers when it comes to the question of delivering large quantities of water through single lines of hose.

Maximum Range of Streams

To the Editor:

I would greatly appreciate an answer to the following question:

Is it possible to throw water on top of a 12-story building 140 feet in height by using a turret nozzle equipped with a four way siamese?

What formula do you use for vertical reach, when using a 2-inch tip with a nozzle pressure of over 120 pounds?

Using the formula of $11 = \sqrt{240\ P - P^2 - 1900} - 15$, 120 pounds nozzle pressure works out 104.8 feet but does not seem correct when using tips of 2 inches or more in diameter.

T. N. E.

Answer: It might be possible to throw water on the top of a 12-story building, 140 feet in height, by using a turret nozzle equipped with a four-way siamese. But it would not be a practical operation.

If the air is still, some of the water would probably reach the roof of the building, but you certainly would lose all solidity of stream.

The formula you refer to is one employed for finding effective reach—that is, the reach at which the stream will be considered of full effectiveness. Of course, the stream will reach a greater distance than determined by the formula, but such latter reach would not be effective, for the stream would be badly sprayed. Large fire departments using water towers consider the tenth floor the maximum on which a stream can be discharged with full effectiveness from the tower—which is elevated to 65 feet. Thus you see the real limit of effectiveness is much less than the maximum range of the stream.

Calculating Flow Through Small Line

To the Editor:

Will you please tell me how to figure the amount of water that passes through this layout: A 2½-inch line with play pipe having ½-inch tip. To this tip is connected a 50-foot section of 1½-inch rubber lined fabric hose having a ½-inch tip. Is there a factor for this size hose and tip?

Thank you for assisting me in this problem.

W. B. R.

Answer: The method of solving this problem is as follows: Change the 1½-inch hose to 2½-inch by dividing 50 by 0.074 which is the factor for changing 1½-inch hose to 2½-inch.

You'll get quite a long length of 2½-inch hose, which is to be added to your 2½-inch line in the layout. This will give you the total length of 2½-inch hose from the engine to the nozzle. As the nozzle is but ½-inch in diameter, you will have to solve for the factor "K" for ½-inch on 2½-inch hose. This is done as follows: ½ x ½ x ½ x ½ ÷ 10. This gives 0.00625.

Then employ the Underwriters' formula for finding nozzle pressure: N.P. = E.P. ÷ (1.1 + K.L), where "K" is factor referred to above; "L" is the number of 50-foot lengths of hose in the line.

After you have found the nozzle pressure you determine the discharge by formula:

Discharge (gallons per minute) = $30 \times D \times D \times \sqrt{P}$

Where "D" is the nozzle diameter in inches; "P" is the nozzle pressure in pounds per square inch. This will give you the discharge for the nozzle, which is the flow through the line of hose.

Of course, you require the engine pressure to make the above calculation.

Gorman Heads Firemen's Association

Lawrence A. Gorman of the New York Fire Department was re-elected president of the Uniformed Firemen's Association by a vote of over six to one. President Gorman has been a member of the fire force for twenty-four years and served in many companies in the borough of Manhattan. His first assignment was Hook and Ladder 21 on the west side of Manhattan.

Two years ago he was elected vice-president of the firemen's organization. A year later when nominated for president he was elected without opposition as his opponent withdrew from the contest. He is the third man to occupy the presidency since the Uniformed Firemen's Association was formed in 1917.

New York's Latest "Baby Chief"

They are promoted so young and so often in the New York Fire Department, and there are so many of them at a time, that it frequently provokes the question—"who is the baby chief?"

Battalion Chief Hugh A. Halligan

Hugh A. Halligan, a native of the old "Gas House" district, who captured third place on the eligible list for battalion chief a year ago, is thirty-five years of age and has been a smoke eater thirteen years. He is assigned to the Sixth Battalion, located in East 13th Street near Fourth Avenue in the old high hazard district which abounds Union Square.

Chief Halligan was a blueshirt in Engine Co. 88 in the Bronx when the war broke out "over there." He tried to get into the aviation service but was rejected, finally ending up in the 342nd Fire Guard Unit, because he was a good fireman. He is a graduate of St. Francis Xavier High School, class of '13, and was in the building construction line before donning the blue. His brother Joseph is a sergeant of police in New York, brother William is in charge of all tolls on the Holland Tunnel and another brother is the Rev. James P. Halligan, who was chaplain of the 308th Infantry, a part of the "Lost Battalion." Incidentally, the "baby chief" is still single.

WM. JEROME DALY.

Detroit Firemen Against Raise

Detroit firemen plan to ask the Board of Fire Commissioners to rescind the action in granting them a five per cent pay raise, and to ask that the money be used in alleviating the poverty and unemployment in the city. The pay raise would have meant an increase of $215,900 in the pay roll each year, and the firemen believed that this money could be used for better purposes.

Under the present salary scale the chief receives $7,500, deputy chiefs $4,500, battalion chiefs $4,008, captains $3,180, lieutenants $2,880, and pipe men and ladder men $2,420.

Chief G. S. Pitt of Middletown Dead

Chief George S. Pitt, a member of the Middletown, Connecticut, fire department since 1887, and the oldest permanent fire chief in New England, died suddenly at his home on January 2 after a short illness. He was seventy-one years of age. Chief Pitt was taken ill on January 1, New Year's Day, after having aided in recovering the body of a drowned boy.

The Late Chief George S. Pitt

Chief Pitt's funeral was held on January 5 after impressive ceremonies in the Church of the Holy Trinity, Middletown, with interment in Pine Grove Cemetery. Members of the fire department who served under Chief Pitt acted as bearers while representatives were present from the Connecticut State Firemen's Association. Chiefs from Bridgeport, New Haven, Hartford, Meriden and New Britain attended the funeral.

A delegation from Middletown Lodge No. 771, B. P. O. E., of which Chief Pitt was a member, was in attendance along with representatives from the Fire Chiefs' Club of Connecticut.

Chief Pitt was known as the dean of Connecticut fire fighters. He was a member of the department for fifty-two years and was to have celebrated his thirty-fourth year as chief in March. He was born in Middletown and at the age of eighteen became a member of the volunteer department, then known as the Douglas Hose Company. After fifteen years service with the Douglas Hose Company he was appointed assistant chief under Chief Frederick W. Willey. On March 2, 1896, he succeeded Chief Willey in that post and has since held the office.

Chief Pitt was well known throughout Connecticut. He was president of the Connecticut State Firemen's Association for one term in 1900. Since 1896 he has been a member of the Executive Committee. During the early years of his administration Chief Pitt also held the offices of fire warden, fire marshal, fuel administrator and superintendent of fire alarms.

Besides his wife, he leaves two sons, Rev. Louis Pitt of Ardmore, Pa., and Lester Pitt of Springfield, Mass.

THOMAS F. MAGNER.

Bayonne Fire Alarm Officer Dead

William R. Arbuckle, Superintendent of the Fire and Police Alarm Systems of Bayonne, N. J., since 1907, died in his home of heart disease on January 15. He had been ill since June and until January 13 was confined to the Bayonne Hospital. Mr. Arbuckle was sixty-six years old.

He was born in New York but moved to Bayonne thirty-five years ago. He served both as President and Secretary at various times of the International Association of Municipal Electricians. In addition to this association, he was a member of the Masons, past regent of the Royal Arcanum lodge, a member of the Kiwanis Club and Jr. O. U. A. M.

Mr. Arbuckle is survived by his widow, a son, a daughter and three grandchildren.

Germantown, Wis., Buys Apparatus—Germantown, Wis., has placed an order for a Seagrave pumper of 600-gallon capacity.

Milroy, Ind., Raising Funds for Apparatus—Funds are being raised in Milroy, Ind., for the purchase of fire apparatus.

Apparatus Delivered to Lamont, Ia.—Boyer fire apparatus has been delivered to Lamont, Ia., intended for rural fire protection. Shares were sold to the farmers to finance its purchase.

NEW JERSEY FIRE CHIEFS HEAR DR. HARRY M. ARCHER

Large Attandance at First Quarterly Meeting Held in Harrison—Tentative Ordinance Drafted for Safe Refrigeration Installation

THE value of quick action and an appreciation of possible dangers due to infection were stressed by Dr. Harry M. Archer, fire department surgeon of the New York Fire Department, in his interesting talk on First Aid before the quarterly meeting of the New Jersey Fire Chiefs' Association held in Harrison, N. J., January 15. The chiefs met in the auditorium of the General Electric Company.

They were welcomed by Mayor O'Brien of Harrison. Charles Greenfield, President of the association, responded and thanked the city for the arrangements provided.

Dr. Archer, Honorary Battalion Chief, and President of the Police and Fire Surgeons of the United States, gave an informal talk on first aid work. He said that any time the skin is broken, the doctors consider it as a wound. All wounds should receive prompt attention because of the serious developments that are possible if infection sets in. He told of several instances where prompt application of iodine or mercurochrome would have prevented disability.

A punctured wound is something that requires medical attention because of the danger of lockjaw. A nail in a foot was brought out as an example of a punctured wound. Two members of the New York Fire Department each lost one leg because of scratches that were not proprly taken care of during the early stage.

A large hemorrhage requires the application of a tourniquet. With the aid of a fireman present, he demonstrated its application. Because there are two bones in the lower part of the arm and foot, the tourniquet should be applied to the upper part of the limb where the one bone makes it possible to apply a greater pressure. In case of emergency, the one applying first aid should not even bother to remove the patient's coat but should apply the tourniquet on the sleeve.

Fractures are both difficult to diagnose and are dangerous. Slivers of the bone are apt to sever a large artery, and as a cut artery can not be healed, amputation must follow. Fractures of the back are dangerous due to the many nerves that pass through the spinal column, and the possibility that a jagged edge of a bone may bear down on a nerve. Paralysis of the arm and legs often result. Dr. Archer told of a fireman who fell ten feet and received a fractured back. When examined he was able to move both his arms and legs. In removing the patient, he was picked up jack-knife fashion instead of being placed on a flat board or stretcher. A sliver of the bone came in contact with some nerves and today the man has no control over his limbs.

As Dr. Archer was preparing to demonstrate how to act in case of fainting, some one in the audience fainted and involuntarily made a subject for first aid work.

There were two thoughts that he was anxious to leave with the chiefs—don't wait for an ambulance or doctor, but go to work at once. A person knowing even a slight amount of first aid could do more good than if nothing was done until a doctor arrived.

Several other features of first aid were covered. He said:

"Every department, small or large, should have an inhalator. You must teach your men artificial respiration."

Some time in October the fire department and police surgeons will hold their annual convention in New York City. Dr. Archer urged that each fire department should appoint a doctor as department surgeon and then urge that he attend the coming meeting, the date of which will be set later.

Following this talk, the chiefs were taken on an inspection trip through the Lighting Institute, where they were shown

I. A. F. C. Directors to Meet

A meeting of the Board of Directors of the International Association of Fire Chiefs and the presidents of the various sectional organizations is to be held at New York on February 11 and 12.

Before coming to New York, President Ralph J. Scott, Executive Secretary Jay Stevens and Chief Alt of St. Louis will visit Winnipeg, Canada, to arrange local details for the coming convention.

Those Present at Quarterly Meeting of the New Jersey Fire Chiefs' Association

Otto F. Adams, New Providence.
Chief Wm. Allgaier, Woodbridge.
Chief John W. Ambrose, Arbor.
L. W. Atkinson, Moorestown.
Geo. F. Baier, New Brunswick.
Aaron E. Baker, Maplewood.
Gustav Barfuss, Middlesex.
E. G. Beckert, West New York.
O. F. Beutell, Red Bank.
G. R. Bodine, Long Branch.
Walter J. Bond, Union.
R. H. Bowker, Passaic.
A. R. Brown, New York, N. Y.
Frank A. Brown, Newark.
James F. Buckley, Merchantville.
Charles E. Burr, Bordentown.
R. M. Cadman, Red Bank.
Harvey Campbell, Irvington.
Wm. Cavanaugh, Bernardsville.
Albert Chamberlin, Hillside.
James Clark, East Rutherford.
Joseph P. Coburn, Harrison.
Alfred G. Cockefair, Bloomfield.
F. P. Crater, Gladstone.
Alfred Davis, Bayonne.
E. L. Davis, Wrightstown.
E. N. C. Davis, Haddon Heights.
W. F. Day, Morristown.
E. Daniher, Madison.
Fred C. Decker, Westfield.
James Deming, Helmetta.
Harold Denk, Townley.
Clarence H. Dongal, Livingston.
Wm. Duff, Carteret.
W. J. Dunn, Plainfield.
Joseph Edgar, Plainfield.
N. S. Erhart, New York City.
C. O. Ericson, Helmetta.
J. J. Fagan, Newark.
Frank Feirer, Roselle Park.
Chas. H. Fischer, New York City.
J. S. Foster, Dumont.
Edward Fox, Oaklyn.
Howard Fox, Oaklyn.
Harry J. Francis, New Brunswick.
August Gerstung, Elizabeth.
Iethro Gibbs, Montclair.
Frank Gloor, Totowa.
G. Grambo, Kearney.
F. M. Green, Morristown.
Samuel A. Gruver, Madison.
Alex L. Herrlick, New Market.
Percy L. Hester, Hasbrouck Heights.
T. Hirdes, Belleville.
Samuel T. Howorth, New Providence.
N. M. Hunter, Ridgefield Park.
Wm. F. Ingold, Edgewater.
M. F. Jay, Bayonne.
Chas. F. Johnson, Harrison.
Frank Johnston, Gladstone.
W. H. Jordan, East Orange.
James T. Keegan, Newark.
Chas. H. Kenlan, Newark.
J. W. Knoblock, New York City.
Geo. E. Koeber, Bloomfield.
Andrew G. Koehler, Somerville.
Geo. J. Kuss, New York City.
Irving S. Lamb, Lenola.
David Leerburger, New York City.
John P. Lofts, E. Rutherford.
E. H. McAllister, Moorestown.
Walter McClain, Medford.
Chas. McGettigan, Port Reading.
C. A. McGinley, East Orange.
John A. McIntyre, Morristown.
Wm. McKenzie, New Brunswick.
Joseph McLoughlin, North Bergen.
Wm. S. McLoughlin, Bayonne.
James J. McMillan, Orange.
B. R. Mascutello, Long Branch.
Clifford E. Massey, Lumberton.
Fred R. Maubey, Woodbridge.
R. Meek, Bogota.
Frank Miller, Linden.
G. A. Miller, Demarest.
V. T. Miller, Manasquan.
Wm. F. Miller, North Arlington.
G. L. Mitchell, East Orange.
Paul J. Moore, Newark.
Chas. J. Morris, No. Bergen.
Frank Morrisey, Monmouth Junction.
Geo. T. Mortimer, Bloomfield.
Wm. G. Muller, New Providence.
M. C. Murphy, New York City.
W. G. Murphy, Peapack.
Richard E. Neumann, Merchantville.
John Niolius, Plainfield.
S. H. Nuse, Bernarrsville.
E. R. Oakes, E. Rutherford.
L. Ogden, Roselle.
John S. Olbricht, Carteret.
Wm. F. O'Neill, Weehawken.
Henry Osterman, Jr., Demarest.
Theo. M. Pennock, Mt. Holly.
F. Periano, Park Ridge.
E. W. Perrac, Plainfield.
K. F. Pierce, Kearny.
Chas. Piber, Middlesex.
Oliver B. Presbey, Long Branch.
W. Rapp, Carteret.
Thos. S. Reilly, Newark.
Adam A. Ritter, Clifton.
W. H. Ritzman, Rahway.
Arthur Russey, Glen Ridge.
T. H. Ryan, Harrison.
Louis E. Scherer, Roselle Park.
F. A. Schultz, Hasbrouck Heights
Joseph Schwark, Long Branch
Fred Schweitzer, Garfield
Rudolph Shamberger, Garfield.
James J. Sheehan, West Orange.
Frank P. Smith, East Newark.
George Smith, Hasbrouck Heights.
William J. Smith, Bridgeboro.
E. S. Spining, Bernardsville.
H. H. Stager, Nutley.
B. C. Stavely, Boonton.
James Stevens, East Rutherford.
O. W. Studel, Hasbrouck Heights.
Wm. H. Stockhoff, N. Arlington.
Henry Tamm, Demarest.
S. B. Taylor, Wrightstown.
Charles E. Thiel, Ridgefield Park.
A. S. Thompson, Ridgefield Park.
John J. Towey, Newark.
Fred A. Trowbridge, Morristown.
Charles Waechter, Union City.
Richard A. Weaver, East Rutherford.
O. P. Whitehead, Boonton.
Fred Wied, New Providence.
T. R. Wilson, Madison.
H. A. Wierenga, Plainfield.
N. N. Wolpert, New York City.
James C. Wood, Bernardsville.
H. S. Worman, Boontown.
Harry Wright, Bernardsville.
Wm. Ziegler, Hackensack.
Edward J. Zimmerman, Gladstone.
James G. Yoder, Oaklyn.

the proper lighting for homes, factories, streets and advertising work.

After a luncheon served in the dining room of the General Electric plant, President Greenfield delivered a eulogy on the late T. Howell Johnson, who for many years was active in the affairs of the association.

William L. Dill, Commissioner of Motor Vehicles of New Jersey, spoke on the need for safe driving and for proper insurance for fire department drivers. He said that a bill was being considered that would make it mandatory to insure public servants to relieve the men of any financial responsibility in case of accident. As conditions are now, a city can not be sued for a governmental function, and in many cases the responsibility shifts to the men.

Commissioner Dill said that he believed in pensions for firemen but that he does not believe in a compulsory retirement law. In many cities the chief or other officers are relieved of duty because of a retirement law even though the individual is capable of still giving unimpaired service to the city.

Chief James J. McMillan, of Orange, read a paper on mutual aid systems for fire departments. He described the systems followed by the Egyptian Fire Fighters' Association, the plan followed in some sections of New Jersey, and aid supplied by some large cities.

Chief Charles A. McGinley, of East Orange, presented a majority report of a committee appointed to consider an ordinance that could be adopted by municipalities to ensure the safety of mobile refrigeration.

The motion picture "Fire," released by the National Board of Fire Underwriters, was shown.

A list of those present at the meeting is printed on the preceding page.

DETROIT FIRE LOSS INCREASED OVER THAT OF LAST YEAR

Annual Report of Fire Marshal Attributes This to Increased Building in City—Splendid New Headquarters Opened

By WILLIAM JEROME DALY

THE city of Detroit, Mich., sustained a fire loss of $4,154,775 during the year 1929, according to a report by Fire Marshal G. S. Goldwater, with the Board of Fire Commissioners. This is an increase of $431,131 over the year 1928 and is attributed to the fact that during the year 1929 26,554 permits for new buildings or alterations to existing structures were issued. The valuation of these new and renovated premises is given as $100,542,497. Moreover there has been an increase of 100,000 in the population of the motor city and its consequent additional responsibility.

After devoting much space to the cause of prevention, cleanliness and good order in house keeping, Marshal Goldwater in his report states that institutional inspection has been diligently carried on and further that more than a majority of the recommendations made by the Fire Marshal's office have been carried out.

During the year a total of 68,000 inspections were made and 46,519 hazardous conditions were remedied. Licenses and permits were obtained to the amount of 779 and 212 plans were examined and approved for the installation of standpipes, while 110 standpipe installations were completed.

Detroit had a total of 13,711 alarms during the year of which 11,104 were actual fires, 1,120 were alarms without fires, 1,472 were maliciously false and 15 were outside the boundaries of the city. Last March was the heaviest month with 1,537 calls.

Only fifteen fires extended beyond $30,000 damage each, the heaviest loss of $184,000 being on Michigan Avenue last January in the Premises of Summer & Hecht, et al. The value of the property afire amounted to $237,974,102, the loss $4,154,775 and the insurance $212,892,527.

Thirty-eight fires required additional alarms of which number 24 were second alarms, 12 were 3rds; one was a 4th and one a 5th. The classification of fires runs about the same as the average cosmopolitan city. The Fire Marshal investigated 1,410 fires of which 1,333 were accidental, 77 were incendiary, 23 arrests were made, 8 convictions obtained, 5 were acquitted, one not prosecuted, 6 warrants were refused and 3 were for other cities.

Twenty-six fires to defraud the insurer involved a loss of $105,791; 32 were set for revenge, involving a loss of $66,400; six were made to conceal other crimes and entailed a loss of $27,183 and 13 were set by pyromaniacs with a loss of $9,906.

The Fire Department ambulance record for the year 1929 shows an increase in activity with 139 calls which is 29 more than the year 1928, a total of 1912 miles were traveled, an increase of 495; the bus was on duty 270 hours, an increase of 116 hours.

Perhaps the outstanding achievement of any activity in the history of the Detroit Fire Department for the past fifty years occurred last year when the Department opened a new headquarters building at Wayne and Larned. It is without doubt the finest, most modern and best equipped Fire Headquarters building in existence to-day in any cosmopolitan city of this country.

All Apparatus in Elizabeth Called to Fight Fire

A blaze that started in a shoe shining parlor in the heart of the business section of Elizabeth, N. J., swept a business block and called out all available fire apparatus. Five buildings were involved.

New York Studies Studio Hazards

A special committee of experts appointed by Fire Commissioner John J. Dorman to survey motion picture studios in New York City with a view to recommending amendments to the Code of City Ordinances and to the rules of the Board of Standards and appeals, are inspecting motion picture studios.

The committee met and organized January 13 at Fire Headquarters, where Commissioner Dorman outlined the purposes of the research which is to be conducted into every motion picture studio in the city, with a view to minimizing the possibility of a recurrence of the fatal studio fire in Harlem on December 10th last, and also to take cognizance of the newer hazards presented by the equipment and apparatus of the sound studio industry.

The committee is representative of the fire fighting branch of the department, the fire prevention bureau, the New York Board of Fire Underwriters and the National Board of Fire Underwriters. The personnel of the committee is as follows: Deputy Chief J. T. Waldron, chairman; Deputy Chief John J. McElligott, Assistant Chief Patrick Walsh, Chief Peter C. Spence, of the Bureau of Fire Prevention, and Deputy Chief Thomas A. Larkin, of Fire Prevention. The New York Board of Fire Underwriters is represented by C. S. Cahaskio, C. C. Walgren and G. Y. Lancaster. The National Board of Fire Underwriters by Chief Engineer George W. Booth, A. R. Small and R. W. Fowler.

WM. JEROME DALY.

Maryland Firemen to Meet in June

Plans are being made for the thirty-eighth annual convention of the Maryland State Firemen's Association to be held in Baltimore, June 11-13. Headquarters will be at the Lord Baltimore hotel.

V. A. Simmel of Brentwood, Md., is president of the association and George R. Lindsay of Hagerstown, Md., is secretary.

BOYS MAKE BONFIRE—SHED BURNS; RESULT: 3-ALARM BLAZE

Three Commercial Tracks Housed in Shed Increase Fire When Tanks Let Go—Wire Glass of Eight Story Building Melts

By WILLIAM JEROME DALY

A FRAME shed 50 x 100, used as a cooperage and housing three commercial trucks, all flush with the rear wall of an eight-story concrete building of the Eastern Folding Box Company, the Park-Sunshine Folding Box Company, the Industrial Dyeing Company and J. Lake's Sons, manufacturers of hats, caught fire on Sunday afternoon, January 12. Heat melted the wire glass windows of the eight-story building, necessitating a third alarm.

The premises extend from East 4th to East 5th Streets, between Lewis Street and the East River waterfront. It was reported that the open lot where the cooperage and the automobiles were located was visited by some boys of the neighborhood who made a bonfire. The weather was inclement; it was raining and somewhat chilly.

The shed burned briskly and the flames were given added impetus when the gasoline tanks of the three commercial trucks "let go." The neighborhood is a deserted part of New York's east side not frequented much, excepting by those in nearby tenements. By the time the fire was discovered, the alarm sounded and the fire apparatus on the scene, the heat and fire leaping skyward against the manufacturing building melted the wire glass windows and entered at least three or four floors.

Deputy Chief Henry B. Helm, responding on the second alarm, sounded a third. Fireboat streams did effective work,

Three Alarm Fire in New York's East Side Caused by Boys' Bonfire

as did a water and several hand lines. The building was equipped with standpipes, but no sprinklers. The paper stock furnished ready fuel, but within thirty minutes the fire was under control.

The building was equipped with scuppers along the edges of all floors which allowed tons of water to escape. These outlets are required in structures having concrete floors. They are equipped with clappers which keep out rain, snow and wind, but water from fire lines or water used for flushing runs off very conveniently.

On some floors the fire extended twenty feet back from the melted windows. Three extra sections of the Salvage Corps were called to cover the stock. The fire fighting was in charge of the venerable Joseph B. Martin, Assistant Chief of Department.

Chicago Firemen Reinstated

Firemen who were dismissed from the Chicago Fire Department in an effort to cut down the payroll to the sum provided by the budget, were reinstated for the original order was rescinded. Engine and fireboat companies that were orered disbanded were placed back into service and the entire department is now on a normal basis.

Blakely, Ga., Buys Pumper—Blakely, Ga., has purchased a 600-gallon Seagrave pumper.

Two Consecutive Fires Destroy Hotel

Two fires that occurred on two consecutive days succeeded in destroying the New St. James Hotel and adjoining buildings in Elmira, N. Y. The hotel was a three-story wooden structure.

The first fire broke out at 1:10 a. m. on December 23, and the alarm was sent by phone. Deputy Chief Spaulding re-

Ruins of the Frame Three-Story Hotel in Elmira

sponded with Engines 3, 4, 5 and Trucks 1 and 2. A second alarm was sent in at 1:15 a. m. and brought Chief John Espey, Engine No. 1, and members of the off-shift. The fire involved three rooms and the cock loft at the rear of the third floor. The department succeeded in holding the fire to but $1,000 damages. Five hose lines were laid, and two hydrant streams and one engine stream were used.

On the following day at 2:15 a. m., fire was again reported. The building was fully involved and in addition the intensity of the flames were increased by a number of explosions. The first alarm response was the same as on the previous night. Deputy Chief Spaulding sent in a second alarm at 2:18 and this brought Chief Espey and Engine 1. Special calls were sent for Turret 1, a double deck pipe wagon, Deputy Chief Collins and the off shift men. An explosion blew out a large portion of one wall. Chief Espey, in commenting on the fire, stated that if the hotel were constructed of brick, several firemen would have been killed by the explosion. Other explosions occurred in various parts of the structure.

The hotel was entirely destroyed but through the good work of the firemen, flames did not succeed in reaching a frame stable and attached mercantile structures.

Nine hose lines were laid. Four American-LaFrance 750 gallon pumpers worked for 4½ hours after which hydrant streams were used. The apparatus in service, all American-

Damage Caused by Fire in the White House

Fire that started in the Executive Office in the White House, Washington, D. C., caused damages estimated at $60,000. The photograph shows the holes chopped in the roof of the famous building by firemen who were determined to make sure that the fire was entirely extinguished.

LaFrance make, were one Type 14 city service truck, one 75-foot aerial truck, and four 750-gallon pumpers; special equipment: one Espey ladder pipe with 1⅛-inch tip on aerial ladder, one Morse invincible nozzle with 1⅛-inch tip, one Hart-Phillips deck pipe with 1¼-inch tip.

The second fire lasted for six and one-half hours. A company from the Elmira Heights volunteer department and a pumper responded for duty at both fires. The police department has started an investigation as to the cause of the fire.

ARTHUR W. ESPEY.

WHAT'S BURNING

THE following list includes fires of $25,000 loss and over in the United States and Canada, for the periods designated in the headings. These figures, compiled from telegraphic reports, are based on estimates made at the time, and are subject to later investigation and consequent revision. Taken as a whole, however, they give an approximately correct view of the losses incurred. The figures represent loss in thousands.

Week Ending January 10

CORONA, CALIF.—Three stores damaged..... 35
MACOMB, MISS.—Garage of Dickey Motor Co..... 30
LAKE CHARLES, LA.—Frank building destroyed..... 80
EAST BRANCH, N. Y.—Walsh Bros. foundry destroyed..... 25
CHICAGO, ILL.—St. Elizabeth's Catholic Church..... 150
TREMONT, N. C.—Yelverton Bros. dept. store..... 30
MANCHESTER, N. H.—Plant of Standard Oil Co. of N. Y..... 25
PHELPS, WIS.—High school building destroyed..... 65
JOLIET, ILL.—Machine shop, General Refractories Co..... 25
SYRACUSE, N. Y.—Worbass Boat Shop, adj. property..... 65
HOLY TRINITY, ALA.—Holy Trinity Academy damaged..... 80
SPARTANBURG, S. C.—Spartanburg Country Club destroyed.. 30
TOWNLEY, ALA.—Business property destroyed..... 100
WHITE PLAINS, N. Y.—Residence of G. H. Hill..... 150
JACKSONVILLE, FLA.—Yacht Sea Foam, C. W. Blossom owner 25
BALTIMORE, MD.—Store of J. Schwaber..... 30
JOINER, ARK.—Post office, adj. business bldgs..... 25
EASTON, PA.—Store of Nathan Furniture Co..... 25
NEW GLASGOW, N. S.—Garage of J. J. Hoar..... 30
EDMONTON, ALTA.—Factory of Canadian Bedding Co..... 30
APPLETON, WISC.—Plant of Toy Co. of America..... 25
CARBONDALE, PA.—Gracery whse. of Michael Kaufman..... 125
PITTSBURGH, PA.—Schenley Apts. damaged..... 150
LOUISVILLE, KY.—Stock of Mengel Body Corp..... 150
ATLANTA, GA.—Peachtree Rd. apartment property..... 80
FERGUSON, MO.—Factory of Universal Match Co..... 400
STAUNTON, VA.—Dept. store of Wm. Spector..... 25
FLINT, MICH.—Several business establishments..... 45
NEW MARKET, VA.—Shenvalee Country Club House..... 40
PITTSBURG, KAN.—Wick Hotel damaged..... 65

Blaze Sweeps Old Church in Chicago

Fire of undetermined origin swept through St. Elizabeth's Roman Catholic Church, an old Chicago landmark, and caused a loss of $500,000. Priests ran into the burning building and saved several valuable statues. The illustrations show firemen fighting the fire.

LONG BRANCH, N. J.—Hotel Ambassador destroyed..... 150
STAMFORD, TEX.—General store, adj. property..... 40
BURLINGTON, N. C.—Smith Morrow apt. building..... 125
NEW BRUNSWICK, N. J.—Gymnasium, Rutgers College..... 100
BONHAM, TEX.—Fannin County Court House damaged..... 150
EBENEZER, SASK.—Business property of Robert Border..... 25
LAUREL, MISS.—Mill of Eastman-Gardiner Co..... 50
ALTAMOUNT, N. Y.—Property of W. Burlingame of Albany.... 25
OTTAWA, ONT.—Whse. of Betcherman Iron & Metal Co..... 25
GRAND BLANC, MICH.—Plant of Superior Felt Products Co.... 125
OAKLAND, IA.—Oakland Public School bldg..... 80
TEMPLE, TEX.—Bldg. occupied by Roddy Bros. dept. store..... 125
BROOKLYN, N. Y.—Factory of Schuster & Gaio damaged..... 30
GENEVA, N. Y.—Garage and adj. property..... 40

Week Ending January 17

GENEVA, ALA.—Armory of Batery E, National Guard..... 50
BROOKMEAL, VA.—Sure-Wear Hosiery Mills, adj. property..... 80
ANADARKO, OKLA.—Four business bldgs. destroyed..... 80
TOWER CITY, N. D.—Business property destroyed..... 30
MINNEAPOLIS, MINN.—Property at 12 Eighth St..... 200
BELVIDERE, WIS.—Wheeler Motor Sales Co. bldg..... 25
PHOENIXVILLE, PA.—Laboratory of A. T. & T., 2 mi. W..... 30
TRACKVILLE, PA.—Business property damaged..... 80
CRESCO, IA.—Cunningham Garage, adj. oil station..... 60
CLEVELAND, OHIO—Elevator of Cleveland Grain Co..... 800
NEW YORK, N. Y.—Plant of Rosenberg Cooperage Co..... 40
MENDELHALL, MISS.—Annex of Piney Woods school destroyed.... 35
CABOT, ARK.—Wilson Hardware Co. store, adj. bldg..... 25
ST. STEPHEN, N. B.—Seven retail stores, Water St..... 150
PHILADELPHIA, PA.—Bldg. of F. M. Paist Co. damaged..... 80
CHICAGO, ILL.—Foswyn Arms, a residential hotel..... 30
MECHANICSVILLE, N. Y.—Segal block damaged..... 25
ASBURY PARK, N. J.—Nassau Hall Hotel and Verdgemere Hotel 100
NIAGARA FALLS, N. Y.—Property occupied by Cataract Cleaning Co..... 25
OMAHA, NEBR.—Residence of A. J. Love destroyed..... 40
HUMBOLDT, S. D.—Business property destroyed..... 65
ASTORIA, ORE.—Packing plant of Sanborn Co..... 200
ROCHESTER, N. Y.—Fay's Theatre damaged..... 40
LEITH, QUE.—Grain plant at Leith Docks..... 1,000
ALTON, N. H.—Factory of Nox-all Shoe Co., adj. bldgs..... 150
GREENSBORO, N. C.—Business bldg. S. Elm St..... 60
KINSTON, N. C.—Farmers' Whse. adj. property..... 80
PHILADELPHIA, PA.—Second Baptist Church destroyed..... 400
BOSTON, MASS.—Bldg. occupied by High Grade Shoe Co..... 25
DOVER, N. H.—Magnet Lunch and adj. bldgs..... 25
WICHITA, KAN.—Hangar of Braley Flying School..... 80
MAYSVILLE, KY.—Washington Opera House..... 80
ANDREW, IA.—High school building..... 25
FARMERSVILLE, TEX.—Bldg. occupied by R. G. McCain Co..... 25
BRENTWOOD, PA.—Garage of Brentwood Motor Co..... 30
ALLSTON, MASS.—Harvard Locker bldg. destroyed..... 80

Amusement Park Destroyed

Two fire companies from Philadelphia were sent to Willow Grove, Pa., twenty miles distant to assist the many fire departments that responded in fighting a blaze that broke out in a toolhouse in the park and destroyed four buildings. Fire companies were sent from Willow Grove, Hatboro, Abington, Roslyn, Burnside, Edge Hill, Doylestown, Weldon, Jenkintown, Ogontz, La Mott, Elkins Park, Ambler, Horsham, Cheltenham, Ardsley, Glenside, and Rockledge. In addition, the Philadelphia Second Alarmers served hot coffee to the firemen for the six and one-half hours that they were at the park.

The amusement park consisted of a number of very elaborate buildings erected in a 100-acre park. From the toolhouse, the fire spread to the motion picture theatre and then to the roof of one of the largest concessions in the park. Flames could be seen as far distant as North Philadelphia.

The highly flammable construction of the concessions made good fuel for the flames. By the time the firemen arrived, the theatre was ablaze. Several hundred rounds of cartridges used in the shooting gallery were exploded and the reports sent the men to sheltered points.

Because of poor water pressure in the park, it was necessary to obtain a supply from a large lake one half mile distant. The flames attracted many thrill-seekers. Progress along the roads leading to the park was difficult because of the large number of automobiles. While a large crowd was at hand to watch the fire, they did not stay long because of the intense cold.

EDWARD H. SPRANGERS

Apparatus Delivered to Butte, Mont.—Fire apparatus has been delivered to Butte, Mont.

Pumper Delivered to Warwick, N. Y.—A 1,000-gallon Maxim pumper has been delivered to Warwick, N. Y. The pumper has passed the Underwriters' test.

Haslett, Mich., Buys Apparatus—Boyer apparatus has been purchased by Haslett, Mich. The body is mounted on a Chevrolet truck and it is equipped for both water and chemical streams.

Fillmore Tyson Now Ex-Chief—Fillmore Tyson, well known in fire department circles, is no longer head of the fire department of the Olds Motor Works. He has been transferred to another position at the Olds plant. At one time Tyson was Chief of the Fire Department in Louisville, Ky.

Tinker, Gamewell Vice-President, Dead

Arthur L. Tinker, Vice-President of the Gamewell Company and District Sales Manager for the New York territory, died at his home in Stamford, Conn., following a brief illness, at the age of sixty-four.

The Late Arthur L. Tinker

He was associated with the fire alarm organization for thirty-five years. Previous to that time he was in the employ of an auxiliary fire alarm company operating in New York City, which he managed. This company provided fire alarm service for business houses and all sorts of private interests.

After going with the Gamewell Company, he started in the Erection and Installation Department. He followed this work for quite a period until he became thoroughly familiar with the equipment, and about twenty-five years ago, he left for Germany as Foreign Representative of the company. When he returned, he worked at the New York office as Sales Engineer for a number of years until he became District Sales Manager. About two years ago he was made Vice-President.

It was quite natural for Mr. Tinker to become associated with the fire alarm field. His father was a prominent telegrapher during the Civil War, connected with the War Telegraph Office. He handled Lincoln's telegraph work and became an authority on Lincoln history.

Mr. Tinker's father was associated with such men as Carnegie, Vail, Woolverton and Bates—the first later became the famous steel man, Vail head of the American Telephone & Telegraph Company, and the other two officials of the Gamewell Company. These old telegraph operators formed an association which was continued by the sons of the original members. It was called the "Old Time Telegraphers Association," and the younger Mr. Tinker was an official.

Arthur Tinker was very well known by fire chiefs, fire alarm superintendents and police chiefs. Through his remarkable personality he was able to develop many friendships.

Hotel Fire Causes Two Deaths

Fire in the sub-basement of the twelve story Hotel Marguery at Madison Avenue and 47th Street, New York City, early in January indirectly resulted in the loss of two lives and considerable damage to the stock and contents of the antique furniture show room of Thonet Bros., a firm that has been in business for seventy-five years in New York.

The show room 200 x 200 was filled with furniture on display. In the rear of the sub-basement a salesman saw flames at about 8.15 o'clock in the evening. A telephone call brought Engine Co. 65 and Ladder 2 on a still alarm. Capt. William J. Fiala of the engine company ordered the street box snapped upon arrival. The sub-basement is directly above the tracks of the New York Central Lines where they enter the Grand Central Terminal. The electric light and power services in the hotel are supplied from the conduits of the New York Central Railroad terminal.

The fire, of undetermined origin, had extended to nearly the entire area of the sub-basement. There was an explosion which blew out one of the fronts of a store on the 48th Street side of the building, where it was evident that some concentration, either gas or smoke banked up and finally let go. At all events the fire fighting officials ordered the electric current turned off, lest other serious consequences take place. This "killed" the elevator service in the hotel, the guests of which by that time were scrambling out of the hostelry because of the smoke penetrating the building. An aged woman who had been ill but convalescing was aided down nine stories via stairway. But the exertion was too much—it proved fatal.

In one of the elevators marooned between floors was its operator but, fortunately, none of the guests were trapped with him. The smoke caused him to succumb. The members of Engine Co. 65 endured a terrific ordeal but they managed to spell off and see it through. The hotel contained some of New York City's foremost business and professional men. The hotel is principally used by families rather than transients.

WM. JEROME DALY.

CORRESPONDENCE

Formation of Second Alarmers

To the Editor:

I enjoyed reading a recent, very enjoyable article in reference to the fire fans of various cities. No doubt through unfamiliarity, no mention was made of the activities of friends of firemen in Philadelphia.

I was a pioneer in the formation of one of the most unique organizations in the United States. I refer to the Second Alarmers Association, Inc., of Philadelphia. Organized in 1921, the seventy-five members, workingmen of various occupations, give their services gratis. Sixty-nine pay monthly dues; six officers are exempt on account of extra responsibility. It receives nothing from the city and almost nothing from the wealthy residents. Practically, the only source of income is derived from the annual donation party, liberally subscribed to by the firemen, police, park guards of Philadelphia and Camden, and their friends.

While independent it works in harmony with the heads of the various bureaus—no assistance is refused to those actively combating fires. The association dispenses sandwiches and cakes when opportunity affords, coffee, beef tea, lime juice, seltzer, and cold water, according to the season and the men's tastes.

First aid kits, stretchers, etc., are carried on the two cars and wagons that have been used as ambulances on various occasions. Over 1,200 runs have been made since starting. We look after the welfare of the men for the entire time they are working at a fire. The association responds regardless of the weather. Nothing is permitted to retard the response of the beverage dispensing apparatus. Bells on the apparatus give us the right of way.

Our idea is spreading to Atlantic City, N. J. We are anxious to see all large cities follow our example and believe any space you could devote toward furthering the project would have a tremendous influence on the admirers of the men in blue in other places.

Very truly yours,

THOMAS TAAFFE.

Lawton Chief of Middletown, Conn.

Michael W. Lawton, deputy chief of the Middletown, Conn., fire department for the past two years, has been named by the members of the city council of Middletown as chief of department to succeed the late Chief George S. Pitt who died on January 2 after a two day's illness.

Chief M. W. Lawton

Chief Lawton has been connected with the Middletown department for the past 23 years. For four years he was a volunteer fireman and the remainder of the time was a permanent man. In 1928 he was named as deputy chief. The elevation of Chief Lawton leaves the office of deputy chief to be filled at a later date.

The Middletown fire department, regulars and volunteers, numbers 170 men. There are four companies, O. V. Coffin Hook and Ladder Company and Hose Companies Nos. 1, 2 and 3. The Coffin Company is composed of volunteers. The motor driven apparatus consists of one city service truck with tractor and 237 feet of ladders; two combination chemicals and hose with 40-gallon tank; one combination chemical and hose with 35-gallon tank.

Chief Lawton is one of the best known firemen in Connecticut and enters upon his new duties well experienced, with harmony in the department and the promise of a highly successful administration.

THOMAS F. MAGNER.

Ft. Dodge Sees Need For More Men—Fort Dodge, Ia., had a good demonstration of the need for more men in the department. Within two hours the department was called to fight three bad fires. It was necessary to call out every man and every piece of apparatus.

San Francisco's Early Fire History

(*Continued from page 60*)

been held by numerous influential citizens, who had been old Atlantic firemen, among whom were: Frederick D. Kohler, David C. Broderick, George H. Hossefros, George W. Green, William McKibben, Benjamin Ray, Charles W. Cornell, John A. McGlynn and others.

"In January, 1850, the Council appointed F. D. Kohler chief engineer, with instructions to proceed to permanently organize a suitable fire department. At that time three engines were all the machinery that was to be found in the City, and those not properly provided with hose.

"Three companies, known as the San Francisco, Empire and Protection, were soon formed and brought into service in the fires of May and June. Before the last fire was well burned out, public notice was given for meetings to be held that very evening, to take measures to organize more fire companies. It was evident that such conflagrations might be momentarily expected—and what could three imperfectly provided companies do to arrest them?

"As a result, the Fire Department was regularly organized by ordinance of the Council passed July 1. The government of the Department was intrusted to a Chief Engineer and assistants, and a board of delegates, to consist of two representatives from each company, which officers were to be elected by the members.

"Appropriations were made at the same time for the construction of cisterns and the purchase of apparatus.

"The calamities of 1851 stimulated the citizens to greater exertions and induced the Council to pass numerous ordinances for its benefit. In May, 1852, they created a board of fire wardens, consisting of three assistants and the secretary of the board of delegates, and superintended by the Chief Engineer, with such police powers over the respective fire districts as to allow them to examine all places in which fires were used, ascertain whether danger is to be apprehended from any of them, and discover and punish any violations of the various ordinances for the prevention of future conflagrations."

The Baldwin Hotel Fire in San Francisco in 1898

For sixteen years the volunteer fire department was the most important factor in the city's life.

Paid Fire Department Organized

Yet the hour of those stirring days, when men manned the pumps, had already struck. It was realized that much valuable time was lost, after an alarm had been sounded, before the volunteers could assemble and haul their apparatus to the scene of a fire. Demands had been made that a paid organization replace the volunteer. And also that certain men should be always on duty so that time would be saved in getting started. The horses assisted in this. After much agitation a new order of things was established and the paid department went into effect on the first Monday in December, 1866. The following statement appeared in the report of the Fire Commissioners:

"Its organization being completed, the Department went into active operation on the first Monday in December, 1866, since which time its workings have been repeatedly tested, and are believed to have met with the approval of the public.

"The Department at present consists of six steam fire engines, eleven horse hose reels, two hook and ladder trucks, thirty horses, with the various equipments.

"The number of members to which it is entitled by the act organizing a paid Fire Department, and Order No. 743 of the Board of Supervisors, is 148, exclusive of the Board of Engineers, divided as follows: Six enginemen, 6 firemen, 13 drivers, 5 stewards, 2 tillermen, 1 corporation yard keeper, who are permanently employed, and 115 members who do fire duty only when alarmed. These, together with four men employed by the Board of Supervisors in the corporation yard, one superintendent of steamers, assistant superintendent, hydrantman and drayman, constitute the entire force."

It will be noted that 115 men, while ostensibly members of the Department, were known as "call" men. They worked at their daily avocations, but responded to alarms. The force was sufficiently manned with fully paid men, who were always on duty, who could get the apparatus to fires, but it needed the assistance of the "call" men to do firemen's duty once the apparatus had arrived at the scene of action. In the year 1900 this again was changed. The call men were done away with and the entire Department was placed on full pay and their entire time required for fire duty.

How Volunteers Were Regarded in Early Days

The effection in which the San Francisco Fire Department is held by citizens, as has been demonstrated times without number and in many ways, is ingrained. It dates back to the very inception of the Department itself. How this feeling had its inception can be gained from the following interesting account of the firemen contained in the Annals of San Francisco, which, incidentally, also shows how popular the Volunteers were in those early days:

"The three years of prosperous and healthy growth that have made San Francisco a well-formed and comely place, and not a stunted and scarred piece of patchwork, have been brought about by other causes than the improved style of architecture. The torch has been repeatedly lighted since June, 1851, and there have been the same high winds to fan the flames to greater fury; but, except in isolated cases, the damage doen has been but trifling. More, aye, everything, is due in this connection to the unrivaled 'Fire Department.'

"Firemen in other cities are immensely useful in restraining conflagrations to which all are liable; but the fire brigade of San Francisco enters on a service of terrific danger. The enemy they have to encounter might frighten a dozen armies. They are forlorn hopes that have to storm the very batteries of the fire fiend. Their hard-fought battles, their many victories, and able defense and guard they exercise over their precious charge have gained them, better than laurel or gold, the sincerest thanks and warmest attachment of their fellow citizens.

"San Franciscans would laugh were it said that we flattered the Fire Department. Does a man praise his right for performing its wonderful functions? Yet the Fire Department is the right arm of San Francisco. At the ring of the alarm bell it is not alone the errand-boy, the counter clerk or the rowdy corner loafer that start for the scene of temporary excitement. But the merchant-millionaire springs from his cushioned seat; the judge leaves court and cases, the industrious mechanic drops his tools; editors, lawyers and doctors abandon quills, briefs and pills, and with pallid cheeks but nervous sinews hurry their engines to the threatened spot. They are playing for a fearful stake.

"Men must be daring gamblers to foil the enemy they deal with. Honor to whom honor is due. Give it freely to the Fire Department, and when to it, to the whole body of enlightened, public-spirited and prominent citizens. These men are prouder of their leather caps than though they were bedecked with the tawdry uniform of a militia general—men who have poured out their means with no stinting hand in the formation of the Department.

"The volunteer system need not be abandoned for a paid fire organization. Nothing could replace the loss of an institution so highly valued. San Francisco might get along without government, dispense with churches, abolish drinking houses and places of amusement, cease soldiering, give over reading newspapers, or see without regret their gambling saloons vanish in the clouds. Pleasures are easily done without; but home, bread, years of toil, life itself, are not coolly and calmly to be tossed into the flames."

Fire Alarm Completed in Gadsden, Ala.

A new fire alarm system for Gadsden, Ala., has been completed and placed in service by the Gamewell Company. The first call for duty was caused by a box car fire in the Southern Railway station. Chief Green stated that with this system, the men were able to reach the fire much quicker than if they resorted to the telephone, as was done in the past.

There are fifty-eight boxes scattered in every section of the city, but the system is capable of handling 150 boxes. Additional boxes will be added as soon as it is felt that the expenditure is justified.

New Station for Memphis, Tenn.—A new fire station will be finished soon in Memphis, Tenn. One or two other stations will be built during the coming year in recently annexed territory. A $300,000 bond issue was approved to finance the construction of the houses and for the purchase of equipment.

New Trucks Received for Boston First Aid—Two trucks for the Rescue Squad of the Boston Fire Department have been delivered. The trucks were ordered some time ago after a conference with Commissioner Eugene Hultman, Chief Daniel F. Sennott and Edward Williamson, Superintendent of the Maintenance Division. The trucks are so constructed that they may be used for ambulances if necessary.

The Round Table

(*Continued from page* 58)

building inspection. We divide the town into five sections and inspect all mercantile and public buildings twice a year, five groups in the department taking the sections in rotation. Residents are inspected only through home inspection blanks distributed through school children. Since we began semi-annual inspections three years ago, through this agency alone we have reduced insurance rates on one building enough to save the owners and tenants $567.00 annually in premiums. Ours is a town of about 2,000 population.

J. H. Speddy, Chief, Lakewood, Ohio.: The Captains and lieutenants of each company in their respective districts make systematic monthly inspections of all commercial buildings and factories.

These buildings are inspected monthly. Dwellings are inspected upon request only. The East Ohio Gas Company, upon their installation of meters and inspections in connection therewith, advise us daily of any improper connections, flues or any other defects that they may find. A fire prevention notice is immediately sent to the owner or occupant to make the necessary changes or repairs. A copy of this order is sent to the city building commission and is followed up by them to see that the order is complied with.

Our own department officers make all the inspections as above outlined, together with special inspections by the assistant chief and the chief. The result of these continuous systematic inspections has been educating our business public to such an extent that their attention rarely has to be called more than once to a violation. We have very few cases where written notices have to be sent. However, in the instances where no attention is paid to the written order, it has been necessary to seek the co-operation of the State Fire Marshal. This always brings about the desired result.

As an example, we have just received a letter from Ray Gill, the state fire marshal, advising us that an order has been placed to raze a large dwelling, the owner of which, after verbal and written orders, refused to comply with our requests.

Inspection work has resulted in a noticeable decrease in fires in both the business and factory districts and also in dwellings, notwithstanding a large increase in population and buildings each year, which, of course, bring with them additional fire hazards.

In spite of the severe cold weather we have had there have been very few alarms. We attribute the small number of fires and the low loss to inspections made by our officers.

W. M. Seeley, Chief, Middletown, N. Y.: Until 1924 inspection work was done by the police department. They made periodical inspections. At the beginning of 1924, this work was turned over to the fire department, to be done by paid members. Such wonderful results were obtained that the Common Council, in 1928, appointed one of the paid men as a regular fire inspector. This man is under the supervision of the chief, and does nothing but inspection work.

Every building in the fire district is inspected from cellar to roof once a week. This includes all business buildings and factories (about three quarters of a mile in area). Dwellings and their yards are inspected twice a year.

I believe that every fire district should be inspected regularly. This practice has certainly paid in our city for we have cut our fire loss fifty per cent in five years. There is only one way to fight fire successfully and that way is to stop it before it starts.

J. C. Dobson, Chief, Keokuk, Ia.: We make our inspection work complete in every detail, and use a regular fire inspection blank to record conditions as found by each inspection. We inspect all business and public buildings, as well as factories. We furnish a home inspection blank, which is distributed through the school children once yearly. Business buildings are inspected every thirty days and factories every six months.

As our department is small, the officers take their regular turn at inspection.

Edward Grenfell, Chief, Portland, Ore.: All buildings in the city of Portland are inspected by members of the fire department. Dwellings are inspected once each year and business buildings, including factories, are inspected once each eighteen weeks.

All inspection work is done by senior and junior captains of companies. Company officers are relieved during their period of inspection duty by a detail from a squad provided for that purpose, in order that companies be maintained at standard strength at all times.

W. N. Bates, Chief, Elyria, Ohio.: Inspection of all buildings in our city except private dwellings is made by both officers and men of the fire department as often as departmental conditions will permit.

Elyria is a city of nearly 30,000, with a fire department of twenty-eight men, including the chief and a mechanic, working on a two platoon basis. No extra men are provided for inspection work, vacations or sickness, so that should one man be released for other than company duty, the remaining two men must carry on.

During fire prevention week 292 buildings were inspected. Business and public buildings, as well as small factories, are inspected at more frequent intervals than the larger factories who employ clean-up men and night watchmen and which are generally sprinklered.

James D. Kailor, Chief, Columbus, Ind.: The chief personally makes all inspections except during Fire Prevention Week, at which time firemen assist in the work. Inspection of all buildings in the fire limits of the city are made every six months. No inspection of dwellings is made unless complaints are received. In some instances, a general inspection is made whenever such is deemed advisable.

A record is made of all properties inspected and is kept on file at the chief's office. Notice served, request to clean up, request to remove rubbish, or any other request notations are shown on the records.

J. W. Blakely, Chief, Selma, Ala.: Inspection work by firemen is an important part of duties in this city. We have found it prevents fires by elimination of the cause, and have been able to determine the origin of more than one fire by referring to our inspection files. It also acquaints firemen with the layout of buildings visited during their inspection tour.

Business buildings are inspected quarterly, while special inspections are made whenever necessary. Factories are visited once a year. Inspection work of firemen is checked by their officers.

Harry Zeller, Chief, Sayre, Pa.: Chief of Department and an assistant make a general inspection of the town once each week. Dwellings are not inspected as a whole, inspection being made where bad conditions exist. Business buildings are inspected every three months, unless something occurs which causes us to believe someone is becoming careless; factories twice a year.

Fire drills are conducted in the school once a month, supervised about twice a year by an officer of the department.

The chief is usually accompanied on an inspection

45-Year-Old-Mine Fire Breaks Out Again

For forty-five years a mine fire has been smouldering in Perry County, Ohio. Recently it broke out afresh near New Straitsville and endangered a number of public buildings. Tons of dynamite have been used to blast out the furnace of coals. Above is a section of the Lexington-Logan highway which has sunk three inches as a result of the fire.

tour by an assistant or an assistant with a captain or truck chauffeur.

Claude Witwer, Chief, Barberton, Ohio: Inspection work is carried out every month or two, business buildings being the only property provided for by our inspection ordinance.

The captains do the inspection work and must cover all property assigned to them.

William Kintop, Chief, Charles City, Ia.: Inspection work is carried on by the chief and assistant chief. Business property is inspected twice a year, while factories are visited once yearly. In the latter case inspection is made to see what self-protection is at hand and the general condition of the property.

Officers make a general inspection of the entire community and report to the chief any dangerous conditions which are discovered.

Frank Clark, Chief, Belvidere, Ill.: Our town is inspected Once a year by a deputy State Fire Marshal. Any other inspections are made by request of citizens. Business buildings and factories are inspected once a year and dwellings only upon request.

Thomas F. Burns, Chief, Bridgeport, Conn.: Inspection work in our department is carried on through the Fire Prevention Bureau, who inspect all places of business. Inspections are also made once a month by members of the department who are on night duty.

George Ruey, Chief, Canton, Ill.: All business houses, factories, schools, churches and places of amusement are inspected twice a year, usually during the spring and fall seasons. The only portion of private dwellings inspected is the furnace and flues.

Thomas Almond, Chief, Central Falls, R. I.: Manufacturing property and business blocks are inspected every month. Residences are never inspected. Officers do inspection work to familiarize themselves with the general layout of the property and the private fire protection available in each case.

George A. Wood, Chief, Niagara Falls, N. Y.: Inspection is carried on by members of the department every three months. All buildings are not inspected. Business property, factories and apartments of four families and upwards are inspected quarterly. A captain is detailed to full time inspection duty.

James Welsh, Chief, Eau Claire, Wis.: Regular quarterly inspections are made of all industrial and mercantile properties, as well as places of assembly. Intermediate inspections are made where extra hazards seem to justify. A record file is kept of all inspections made. Private dwellings are not inspected unless our attention is called to some particular hazard. Inspection work is carried out chiefly by assistant chiefs and captains.

J. E. Johnson, Chief, Menomonie, Wis.: Business property is inspected both inside and out every ninety days, while residential property is inspected only on the outside every six months. This work is done by men and officers under the supervision of the chief.

Anthony Pippel, Chief, Grand Haven, Mich.: Inspections are made once a year in the business districts by the fire chief. Factories are inspected annually by the state factory inspector; dwellings by the fire department only on request. All inspections are made by the Chief of department.

Fred A. Placke, Fire Department, St. Louis, Mo.: Building inspection is carried out under the supervision of the Director of Public Safety, and any hazards noted are reported to this department. Dwellings are inspected quarterly, and business and factory properties once a month.

Adolph Hinrichs, Chief, Sheridan, Wyo.: Inspection work is carried on once a week by the off shift in regard to ash cans and rubbish in the residential district, but not the interior of dwellings. Business houses and schools are inspected four or five times a year. Officers assist in this work.

John W. O'Hearn, Chief, Watertown, Mass.: Our schedule of inspection is: Business buildings every two weeks, factories and dwellings twice a year and stores weekly. Officers in charge of platoon do inspection work and special hazards or inspection.

Good results are obtained from this work on fire prevention. Men gain knowledge of buildings and their occupancies.

Ross B. Davis, Chief, Philadelphia, Pa.: Uniformed members are detailed to the fire marshal who has police power by Act of Assembly to inspect all buildings. Business houses and factories are inspected every six months, dwellings only on specific complaint.

Officers inspect buildings in their immediate district to check up on: construction, light wells, areas, exits, stairways, storage of combustibles, etc.

J. M. Andrews, Chief, Sherman, Tex.: All business property is inspected once each week by firemen. We do not inspect residential property. Captains take their regular turn at this work. It is our belief that inspection work does a great deal of good in keeping down fire loss and in familiarizing the men with all buildings.

William Briggs, Chief, Shelbyville, Ind.: City is divided into four inspection districts, and order of assignments rotated so that the men get acquainted with each district. Schools and fcatories are inspected every six months, while the remaining property is inspected quarterly. A report of each inspection is filed, and if hazards are noted, a period of seven days is given in which to correct same. During the year 1,302 inspections have been made, with eight down orders and one case in court at present.

I. S. Zorb, Chief, Butler, Pa.: One fireman is detailed to inspect all business buildings once a month. Factories are inspected once a year and in this work all members of the force receive an assignment. Dwellings are not inspected.

Jethro Gibbs, Chief, Montclair, N. J.: All officers and men do inspection work in our department. This gives the men an equal opportunity of becoming familiar with the layout of the buildings together with the contents thereof. Dwellings are inspected twice a year, factories and commercial stores twice a month. Hydrants are inspected twice a year.

W. O. Aldrich, Chief, Whitinsville, Mass.: During Fire Prevention Week fifty members of the fire force make a house to house inspection tour. We consider this work of great importance. The inspection of business and factory property is not conducted by the fire department. The inspection of residential property which is carried out once a year as specified above is supervised by three captains.

R. W. Maxwell, Chief, Clarksdale, Miss.: Inspection work is carried on continuously, all property receiving due attention, which is inspected every four months. As a general rule the inspection of the larger factory and commercial buildings are in charge of captains.

Oscar O. Smith, Chief, Salem, N. J.: Property in the closely built up portions of the city is inspected twice a year, outlying property, once a year. All inspections are carried out by the Chief or under his supervision. Offending property owners or occupants are given ten days to remove any hazards which are reported.

Harry E. Colby, Chief, Franklin, N. H.: All buildings in our city are inspected under the following schedule: business buildings, monthly, and factories, every six months. This work is carried on in two-week schedules throughout the year. Officers share in inspection duty as do the men.

Answer to Previous Problem

George H. Neff, Chief, Grafton, Ill.: Our volunteer department holds a drill every other week, out of doors if weather permits.

All fires during the year 1929 were extinguished with chemicals. Another point considered in our drill sessions is the laying of various combinations of hose lines, pumper to potential fire locations as against future need. Drills of necessity held indoors are used for lectures and discussion of fire prevention and extinguishing subjects.

Los Angeles Honors Dog

To be praised by the head of a large city fire department may or may not mean something in the animal world, but a plate of ice cream is a reward that any dog will appreciate for preventing a film fire in Hollywood.

While walking along a Hollywood street he rushed to one of the buildings, commenced barking and attracted a crowd. The dog had detected a faint wisp of smoke which others would probably have never noticed. The dog was awarded a silver medal.

San Antonio to Erect Fire House—San Antonio, Tex., has invited bids for the construction of a fire house in the recently annexed suburbs. It is estimated that the building will cost $27,000.

INDUSTRIAL PLANT PROTECTION

HOW ELECTRICAL MACHINERY IS PROTECTED FROM FIRE HAZARDS

To What Extent Fire Protection is Needed in Such Apparatus—Protective Measures Used in Eight Systems

TO what extent is fire protection necessary in electrical apparatus? What apparatus needs the most protection? What measures are used now? What is the best form? What determines the expenditure warranted?

These are questions that every electrical engineer has to answer at one time or another. To secure a cross-section of the opinion on this subject eight prominent engineers were consulted.

As one engineer says:

"The best fire protection practice indoors is to install oil-insulated transformers and regulators in fireproof rooms, which can be closed in times of trouble and protected by some kind of a gas system similar to the so-called 'lux' system. In the case of large, expensive rotating apparatus, such as turbo-generators, frequency-changer sets and synchronous condensers, that have their frames built tight enough so that the air dampers can be closed in emergency, they should be protected either by perforated water pipes installed inside the frames or by some non-inflammable gas, such as the 'lux' system. My preference is for gas."

Extent to Which Protection Is Necessary

One engineer says that all major apparatus should be fully protected, as damage by fire is usually expensive and also causes interruptions to service. This statement is qualified by three other engineers, one of whom says the extent of protection depends on the probable cost of repairs and the risk and seriousness of interruptions to service. Careful analysis should be made in each case, warns another engineer, in order that use of fire-fighting equipment may not prove more hazardous than the fire. Hazards to other equipment must also be taken into account.

In studying the need for fire protection, points out still another engineer, two classes of damage must be considered —direct and indirect. Apparatus which is very expensive, which is unusually susceptible to fire damage or which individually is very essential to service should be protected from fire danger. Consideration should also be given to the probability of any fire damaging other important equipment provided that the congregation of susceptible apparatus is extensive or of large aggregate value, or provided that service is endangered.

Apparatus That Needs Most Protection

Modern station buildings are fireproof and usually the only apparatus which would cause a fire of any magnitude is that containing oil, points out one engineer. Therefore, protection is needed primarily for oil-filled equipment such as transformers, regulators and oil circuit breakers. Small fires may result in insulation failures on wires, he adds, and machine windings sometimes cause fires within the equipment, but these are not very extensive. Two engineers insist there is no choice, if the apparatus contains oil or considerable fibrous insulation which will burn. Still another declares that air-cooled synchronous machinery of large capacity, connected to circuits in which high-voltage transients may originate, demands protection most. Aside from emphasizing the need of protection against fires from equipment containing considerable oil, the other engineers consulted call attention to the need of protecting rotating equipment such as generators, synchronous condensers and motor generators.

Protective Measures Used in Eight Systems

Methods of guarding against fires and limiting damage differ. Among precautions taken by the eight companies consulted are: Steam, water or CO_2 connections with manual or automatic control; recirculating ventilating air continuously or temporarily; fire-resistive cells or group compartments; isolation by separation outdoors; crushed rock or cinders to absorb oil and quench fire outdoors; use of "foamite," "pyrene," carbon tetrachloride, sand.

Not all these precautions are necessarily used by each company. For example, one company reports use of steam connections to generators, two water connections, three CO_2 connections, one recirculation of air, fire resistive cells and outdoor isolation (although others are known to use these methods), one crushed rock, three "foamite," one "pyrene," two carbon tetrachloride, one CO_2 portable extinguisher, two sand, two unidentified portable equipment. One of the companies declares that "foamite" is probably the most effective for oil fires, and that small fires, such as switchboard wiring, are extinguished by carbon tetrachloride or carbon dioxide. CO_2 gas is injected by one company into inclosed machinery, compartments or individual pieces of apparatus.

Opinions on Best Fire Protection

Again opinions vary, CO_2 connections being favored by two, where air is confined; recirculation of ventilating medium by two, fire-resistive cells or rooms by four (although others infer this method), outdoor isolation by two, crushed rock by one, "foamite" by three, "pyrene" by one, carbon tetrachloride by one, portable CO_2 extinguishers by two, sand by one and unidentified portable extinguishers by two. "Foamite" is recommended by one for oil fires, and for outdoor fires by another.

Protection of oil circuit breakers will be influenced by the amount of equipment involved, the amount of oil in use, the segregation of oil tanks, tightness of inclosures, complications due to piping and automatic equipment.

Although only one engineer pointed it out, others doubtless agree, by their practices, that providing differential relay protection on generators and transformers is a protection against fires of the preventive rather than remedial character.

Expenditure Warranted

Experience is too limited to serve as the determining factor in deciding upon fire protection, declares one engineer, because of rapid changes in design of electrical apparatus. It is the consensus of opinion that the expenditure for fire protection must be decided in each individual case by the risk involved, the cost of the equipment and the cost of interrupted service. However, one engineer claims that expensive fire-protective equipment does not appear warranted, and that portable fire apparatus in proportion to the fire hazard is relatively inexpensive.

Considered more in detail, says one engineer, the problem involves determination of

(a) Money value of apparatus involved.
(b) Importance of service rendered by apparatus involved.
(c) Probability of incidence of fire.
(d) Probability of spread of fire.
(e) Probable physical damage.
(f) Probable hazard to human life.
(g) Cost of insurance to reimburse monetary loss.

As one engineer points out, insurance of continuity of service might in individual cases justify an expenditure for fire equipment in excess of the material protected. Much of the information contained in this article is taken from the *Electrical World*.

Marietta, O., May Buy Apparatus—Marietta, Ohio, is considering the purchase of additional apparatus so that it may render better service to outside communities. On several occasions Marietta has been called upon for aid from outside areas.

Delphos, O., Receives Apparatus—Delphos, Ohio, has received apparatus purchased for the protection of rural property. The pump has a capacity of 500-gallons and has been approved by the Ohio Inspection Bureau.

Willow Springs Gave Away Truck—But—Two years ago officials of the village of Willow Springs, Ill., gave away an old piece of apparatus because it was considered to be too old for fire duty. The apparatus was given to local Boy Scouts. Recently there was a fire at which it was necessary to form a bucket brigade, but the building was destroyed at a $50,000 loss. Now the village is seeking new apparatus, even though it may be as antiquated as the unit given away.

FIRE DEPARTMENT ACTIVITIES

Wooster, O., to Buy Pumper—Wooster, Ohio, has received bids for the purchase of a pumper.

Phillipsburg, N. J., Has New Fire Alarm—A new fire alarm system has been installed in Phillipsburg, N. J.

Brockton, Mass., May Buy Aerial—Brockton, Mass., is considering the purchase of an aerial ladder.

Camden, N. J., Firemen Working for Raise—Agitation is developing in Camden, N. J., for a pay raise.

Oakland, Ia., Buys Rural Apparatus—Oakland, Ia., has purchased apparatus to be used for rural protection.

Jackson, Ohio, Chief Resigns—O. J. Welsh, Chief of Jackson, Ohio, has resigned as head of the department.

Siren Installed at Luzerne, N. Y.—A new siren, a gift of a summer resident, has been installed in Luzerne, N. Y.

North Adams Chief to be Under Civil Service—North Adams, Mass., has voted to place the chief under civil service.

New Fire House Opened in Wenatchee, Wash.—A new fire station has been formally placed in service in Wenatchee, Wash.

Oakdale, La., to Build Fire House—A two-story fire house is to be erected in Oakdale, La. The contract has been awarded.

Freeport, N. Y., Has New Fire District—Freeport, L. I., N. Y., has laid out a system of fire districts to facilitate fire alarm response.

Fire Apparatus Ordered for Rochelle Park, N. J.—Rochelle Park, N. J., has ordered a 500-gallon Buffalo pumper and a Buffalo ladder service truck.

Salt Lake City to Change Zone Law—The zoning laws of Salt Lake City, Utah, are to be changed to permit the erection of a fire station between Second and Third Streets.

Yuba City Chief Asked to Resign—At a secret meeting of the City Council, Chief James A. Long of Yuba City, Cal., was asked to resign. Chief Long was appointed in 1926.

Jacksonville, Fla., to Have New Headquarters—A new fire alarm headquarters is to be constructed in Jacksonville, Fla., in addition to a new fire house for Company No. 4.

Hamden, Conn., to Purchase a Pumper—Hamden, Conn., has placed an order for a 600-gallon Maxim pumper. This is the third Maxim fire apparatus purchased by the board.

Ten Firemen Ill from Film Fumes—Ten firemen of Quincy, Mass., were made ill from the fumes of burning films at a fire in the projection booth of a theatre in Quincy.

Burlington, Ia., Firemen Make Toys—Members of the Burlington, Ia., department reconstructed one thousand toys for redistribution to destitute children at Christmas time.

Alexandria, Ind., to Receive Bids—The courts have granted Alexandria, Ind., the privilege to receive bids for fire apparatus. There is a suit pending to prevent the city from purchasing fire apparatus.

Geneva Firemen Pay Rate Changed—The volunteer firemen of Geneva, Ohio, responding to a fire will receive $1.50 for responding and for the first hour's work, and after that, at the rate of fifty cents an hour.

Syracuse to Open New Fire House—Syracuse, N. Y., plans to open a new fire house early in 1930. Bids have been invited for two 1,000-gallon pumpers and an 85-foot aerial ladder. Part of this is for the new fire house.

Erie, Pa., Considering Pay Raise—A conference has been held in Erie, Pa., to consider means by which fire department salary increases could be financed. It is believed, however, that there will be few, if any, pay increases.

New Company Organized in Utica, N. Y.—Company No. 12 has been placed in service in Utica, N. Y. It is the newest addition and will protect the South Utica section. A fire station to house the new company is now in the course of construction, although no date has been set for its completion.

Springfield, Mass., to Buy Pumper—A new pumper and a light squad wagon are to be purchased for Springfield, Mass. An old Robinson pumper was sold for fifty dollars and a Knox pumper is to be sold in the same way. The present squad wagon is to be equipped with a derrick and used for a wrecking car.

Youngstown Has Strict Requirements—Only eighty-eight of the 236 candidates for the Fire Department of Youngstown, Ohio, passed the mental examinations given by Chief Callan, and only a small percentage have passed the physical requirements. If the required number do not pass, the city may lower the physical standards.

Made Lieutenant for Heroism—William J. Ryan, of Lowell, Mass., was promoted to lieutenant because of heroism in risking his life in a gas filled manhole to save two men who were unconscious. Mayor Braden in his inaugural address stated that he was in favor of a pay increase for members of the department.

New Fire Alarm Reward Measure Asked—Officials of the Department of Public Safety, Wilmington, Del., have asked that a new ordinance be drafted to provide a reward for persons informing the police of persons who turned in false alarms. It was brought out that the present law is defective and that no rewards can be paid.

Cab Crashes Into Cambridge Fire House—Two men in a stolen taxicab crashed into a fire station in Cambridge, Mass., awakening the men who were asleep in the bunkroom and damaging doors leading to the apparatus room. The driver was arrested charged with driving while intoxicated, larceny of an automobile, and malicious destruction of city property.

Portland, Me., Planning New Fire Boat—Portland, Me., is considering the construction of a Diesel engine operated fireboat. In reply to a query, the National Board of Fire Underwriters stated that the Diesel engine propelled boat would be satisfactory and suggested that an electrically operated starter be provided as an emergency measure in the event that the high pressure air tanks rupture.

More Men Urged for Burlington, Vt.—The National Board of Fire Underwriters, following a survey of Burlington, Vt., has recommended that eight additional men be added to the department, so that there will be six men on duty during the day and eight at night in most of the companies; also that Hose Companies Nos. 2 and 3 be changed to engine companies and equipped with 750-gallon pumpers.

Middle Village to Have New House—Bids were received at fire headquarters, New York City, for the erection of a new fire station in Middle Village, L. I., within the city limits. The lowest bid was $52,900. The station would be constructed in accordance with the department's program of providing thirty-seven new fire houses within the next three years. The Middle Village house will be two stories high and of fireproof construction.

Saratoga, N. Y., Without Fire Alarm System—Saratoga Springs, N. Y., will be without a fire alarm system until early in June as a result of sleet storms that destroyed the present system. A contract has already been let to the Gamewell Company for a fire alarm system that will be completed in connection with a new fire house, but work on this improvement will not be started for some time, at any rate until March. The council refused to appropriate funds to repair the system for service up to that time.

Maryland Starts Fire Survey—Fire inspectors from volunteer companies in Maryland associated with the Maryland State Firemen's Association have started a fire survey. It is being made by two or three members of the 121 companies in the state. They have power to enforce inspection laws and to pay particular attention to schools, churches, hotels, theatres, hospitals, garages, etc. Failure to comply with instructions given during inspections makes the owner liable to a fine of from five to fifty dollars.

Westchester County Chiefs Meet—A meeting of the Westchester County Fire Chiefs' Plan Association was held in Port Chester, N. Y. The meeting considered the responsibility of a community in the event of the injury or death of a volunteer fireman from an outside community in answering alarms. A committee was appointed by the association to draft a model ordinance that would cover this problem. Chief James J. Mulcahey of Yonkers suggested that a list be made of all fire fighting apparatus and equipment in the county. He pointed out that such a list would prove of immense value.

PROPOSED IMPROVEMENTS

Atlanta, Fulton Co., Ga.—Fire Chief Terrell recommended the establishment of three double company stations housing service truck and pumper near city limits in south, north and west sides of city; the replacement of several pieces of apparatus, and additional men.

Burlington, Chittenden Co., Vt.—National Board of Fire Underwriters recommended that city change hose companies 2 and 2 to engine companies equipped with pumpers of at least 750 gal. capacity. Carl D. Stockwell, Chief of Fire Dept.

Lowell, Middlesex Co., Mass.—Chief James C. Sullivan requested that an appropriation be included in the 1930 budget for purchase of two new pieces of apparatus.

Taunton, Bristol Co., Mass.—Fire Chief Fred A. Leonard recommended the erection of a drill tower and the purchase of two pumpers, according to reports.

Lindsay, Tulare Co., Calif.—A new fire station is to be erected on North Mirage Ave.

Santa Paula, Ventura Co., Calif.—Fire Chief King requested City Council to purchase a new piece of fire apparatus and additional hose for fire department. Estimated cost, $10,000.

Hartford, Hartford Co., Conn.—Fire Commissioners to request an appropriation in the budget for the purchase of five pumpers for the fire department.

Columbia, Boone Co., Mo.—City to vote soon on a bond issue for several fire stations, according to reports.

Raton, Colfax Co., N. Mex.—A site has been purchased for new fire station on north side of city.

Zanesville, Muskingum Co., Ohio.—Installation of a new fire station in newly annexed territory adjacent to Zanesville is being considered by city. W. H. Webster, Mayor.

July Fourth Precautions Urged

More than half a year ago in St. Louis occurred a tragedy to which Miss Frances Perkins, the Industrial Commissioner of New York, is now calling the attention of the novelty trade in anticipation of preparations for the coming Fourth of July. This was the fire in a five and ten cent store in which four children lost their lives, when sparks from a broken electric wire touched off a fire-works display.

It is to prevent the possible repetition of such tragedies this year that the head of the New York State Labor Department now recalls it to all persons connected with commercial preparations for Fourth of July celebrations. She has issued orders to the mercantile inspection bureau of the Labor Department to pay particular attention to establishments selling fireworks, and is urging all persons in any wise responsible for the manufacture or sale of fireworks to do their utmost to prevent fires and disasters as awful accompaniments of our annual patriotic celebration.

The commissioner said: "Everybody knows that all cities nowadays have ordinances governing the display and sale of fireworks; and everybody knows that with each returning Fourth of July such ordinances are more and more openly disregarded. The Fourth seemed actually to become somewhat 'saner' for a few years, but now there is a threatened return to the old-time spirit of carelessness and risk. As a St. Louis paper said editorially at the time of last year's disaster in that city: 'It is the nature of children to anticipate the Fourth and it is the nature of some merchants to take advanage of the demand and ignore laws written around a safe and sane observance.'

"In the St. Louis fatality, investigation shows that the illegal display of fireworks was not the only condition which did not fully regard the safety of public and employees.

"The store building in which the fire occurred, though constructed of brick and consisting of but one story and basement, was not designed for safety in emergencies. This but provides another proof that the proposed Mercantile Code of New York State, designed to overcome fire hazards in existing buildings, cannot be too speedily adopted. Though this store's exits were plentiful, they were not of a kind to be readily available in an accident. Two front doors, opening to the street, were hung to swing in; a side door, opening into a courtyard, was also in-swinging; a steel plate door, opening into a narrow passageway, was kept locked; the outside windows, except one on the street floor, were six or seven feet above the floor level, and were covered with iron bars. The stairway from the basement to the store—the only basement exit indicated—was apparently regarded by some persons trapped by the fire as the best means of escape, as several of those rescued were taken out of the basement through a coal hole, and one of the dead children was found in the basement."

New Sharon, Ia., to Buy Apparatus—Funds have been raised in New Sharon, Ia., for the purchase of fire apparatus.

Hamden, Conn., Awaits Pumper—Hamden, Conn., is awaiting the delivery of a Maxim pumper.

Fire Course Planned for Oklahoma

Plans are being developed for an all year round, state wide, supervised course of training and instructions for firemen. The plan being considered has the approval of the Oklahoma Fire Chiefs' Club, the Oklahoma State Firemen's Association, the State Chamber of Commerce, the Oklahoma Municipal League and the University of Oklahoma. All of the committees met for a joint meeting to consider definite methods of organizations and ways in which the school may be financed.

The Executive Board of the Oklahoma State Firemen's Association held a meeting to close the affairs of the association for the fiscal year. The Board of Directors of the Southwestern Association of Fire Chiefs are to meet to arrange for the convention to be held in Oklahoma City early in March. Chief Goff of Oklahoma is making plans for the entertainment of the chiefs of the southwest when they visit his city.

Huntington Park, Cal., to Buy Pumper—Huntington Park, Cal., has recently closed bids for the purchase of a 1,000-gallon pumper.

Apparatus Delivered to Cottage Grove—A combination chemical car and hose wagon has been delivered to Cottage Grove, Cal. The department has two pieces of apparatus.

Firemen's School Planned for Portland—C. A. Bigelow, Fire Commissioner of Portland, Ore., is considering the formation of a firemen's school for the training of firemen. It may be patterned after the one operated by the police department which recently held its sixth graduation exercises. A member of the department may be sent to Los Angeles to obtain some suggestions for the intended school.

CONVENTION DATES

Jan. 21-2—NEBRASKA STATE VOLUNTEER FIREMEN'S ASSOCIATION. 48th Annual Convention, Kearney, Neb. Secretary, H. A. Webbert, Kearney, Neb.

March—SOUTHWESTERN ASSOCIATION OF FIRE CHIEFS. 3rd Annual Convention, Oklahoma City, Okla. (Tentative—Exact date to be decided later.) Secretary-Treasurer, Chief Tom Lyle, Okmulgee, Okla.

May 12, week of—NATIONAL FIRE PROTECTION ASSOCIATION. 34th Annual Meeting, Atlantic City, N. J. 1931 Convention probably to be held in Toronto, Can. Managing Director, Franklin H. Wentworth, 60 Batterymarch St., Boston, Mass.

May 14—DEL-MAR-VA. VOLUNTEER FIREMEN'S ASSOCIATION. 1st Annual Convention, Cambridge, Md. Secretary, J. Emory Parks, Cambridge, Md.

May 19-23—KANSAS STATE ASSOCIATION OF FIRE CHIEFS, STATE FIREMEN'S ASSOCIATION and FIRE SCHOOL. Repectively, 14th and 43 Annual Convention and 2nd Annual Fire School Salina, Kan. Secretary, Chief K. D. Doyle, Wamego, Kan. Secretary, Firemen's Short Course Committee, E. J. Stewart, Kansas Insp. Bureau, 701 Jackson St., Topeka, Kan.

June—EASTERN ASSOCIATION OF FIRE CHIEFS. 3rd Annual Convention, Baltimore, Md. (Exact date to be decided later.)

June 2-6—AMERICAN WATER WORKS ASSOCIATION. 50th Annual Convention, Hotel Jefferson, St. Louis, Mo. Secretary, Beekman C. Little, Rochester, N. Y. Offices of the Association, 29 West 39th Street, New York City.

June 4-6—NEW MEXICO STATE FIREMEN'S ASSOCIATION. 8th Annual Convention (Combined with Firemen's Short Course), Deming, N. M. Secretary-Treasurer, Theodore A. Rosenwald, Albuquerque, N. M.

June 11-13—MARYLAND STATE FIREMEN'S ASSOCIATION. 38th Annual Convention, Lord Baltimore Hotel, Baltimore, Md. Secretary, George R. Lindsay, Hagerstown, Md.

July 8-11—MICHIGAN STATE FIREMEN'S ASSOCIATION. 56th Annual Convention (with School for Instruction), South Haven, Mich. Secretary-Treasurer, H. L. Williams, Ludington, Mich.

July 9-10—DELAWARE VOLUNTEER FIREMEN'S ASSOCIATION. 10th Annual Convention, Georgetown, Sussex County, Del. Secretary, Sam H. Carson, Dover, Del.

July 22-23—WESTERN NEW YORK VOLUNTEER FIREMEN'S ASSOCIATION. 30th Annual Convention, Rochester, N. Y. Secretary, Henry A. Clark, Batavia, N. Y.

July 29-31—INDIANA FIREMEN'S ASSOCIATION. 13th Annual Convention, Lafayette, Ind. Secretary, Clem Smith, Fire Headquarters, Terre Haute, Ind.

July 31-Aug. 1-2—CALIFORNIA STATE FIREMEN'S ASSOCIATION. 8th Annual Convention, San Francisco, Cal. Secretary-Treasurer, H. E. Strasser, 1171 Tenth Street, San Diego, Cal.

Aug. 19-22—FIREMEN'S ASSOCIATION OF THE STATE OF NEW YORK. 58th Annual Convention, Nyack, N. Y. Secretary, Fred A. Davis, Drawer X, Fort Edward, N. Y.

Sept. 2-4—KENTUCKY FIREMEN'S ASSOCIATION. 11th Annual Convention, Paducah, Ky. Secretary, Capt. S. G. Render, 940 Starks Bldg., Louisville, Ky.

Sept. 9-11—ILLINOIS FIREMEN'S ASSOCIATION. 43rd Annual Convention, Peoria, Ill. Secretary, Assistant Chief Roy W. Alsip, Fire Department, Champaign, Ill. Exhibits, Chief Albert Herring, Fire Department, Murphysboro, Ill.

Sept. 16-17—IOWA FIREMEN'S ASOCIATION. 53rd Annual Convention, Boone, Ia. Secretary, Paul Soener, Independence, Ia.

Sept. 24-25—MISSOURI STATE FIREMEN'S ASSOCIATION. Annual Convention, Trenton, Mo. Secretary-Treasurer, M. J. Mulvoy, 3500 S. Grand Boulevard, St. Louis.

Oct. 7-9—FIREMEN'S ASSOCIATION OF THE STATE OF PENNSYLVANIA. 51st Annual Convention, Hotel Americus, Allentown, Pa. Secretary, Charles E. Clark, 411 Bellevue Avenue, Wayne, Pa.

FALSE ALARMS

Drawing by "Art" Espey

"A Perfection Holder"

A SURE HELPMATE

The strenuous deliberations of the convention were broken up by a golf tournament. Some won prizes, and of course others didn't. The next day as the meetings were under way, the wife of one chief visited a sporting goods store.

She said to the clerk, "I'd like to look at some large handicaps, please; my husband said if he had one yesterday he would have won the golf tournament."

The big Wall street man who was formerly known as "Midas" is now called "Minus."

BELIEVED TOO WELL

Tom who had had a streak of bad luck in attempted burglary thought he would try his hand as a professional incendiary. But at this he fared no better, and was sentenced back to his old prison.

The prison chaplain was surprised and said:

"Why are you here again, Tom?"

"Because of my belief, Chaplain."

"Nonsense! What do you mean?"

"Oh, I believed that no one was looking."

It is always well to wear a tuxedo at a banquet, for then it is always possible, in the middle of a speech, to pick up a few dishes and leave the room without causing a great fuss.

PROPERLY MAGNIFIED

Some western city officials who had at one time entertained a party of chiefs bound east, visited California and called at headquarters to have the favor returned. Being busy at the time, the chief summoned a real estate friend to show the party about.

"What beautiful looking grapefruit you have," said a visitor.

The native replied, "Oh, those lemons are a little small, owing to a bad season."

After a short trip in silence:

"What magnificent homes!"

"Mere huts," replied the native, "you should see some of the real buildings."

When they reached a lake, the tourist who by now had acquired the native angle, remarked, "Ah, someone's radiator is leaking."

There's nothing new about a bargain rush. It's the same old Trail of .98.

WHAT HE WANTED

The joy of most of the local department dinners was somewhat reduced because of certain city officials who believed that the world hung on their words. For courtesy, it was necessary, at one event, to invite a pompous member of the council. When it was his turn to speak, he orated for about fifteen minutes and then said:

"After partaking of such an excellent meal I feel that if I had eaten any more, I would be unable to speak."

When he chanced to look down, he found a sandwich before him.

We mortals believe animals are dumb but no rabbit ever marries a wildcat, and a crow never ruins its health digging worms for a bird of paradise.

PROPER RATIO

A mid-western city was contemplating the establishment of a fire college, and so a visit was made to the nearest city having a successful school. The drillmaster, a hard-boiled officer, was delegated to explain to the visitors the methods employed. They were shown the large lecture hall.

"How many firemen are there studying at this school?"

The drillmaster thought for a moment and then replied, "Oh, about one in ten."

Now that skirts are getting longer, many men are afraid their eyes are on their last legs.

HE GOT IN

A hose salesman, so the story is told, called at the office of a purchasing agent in a large city. The office boy came back with the laconic statement, "Busy."

But the salesman, being of an aggressive type, wrote on the back of the card:

"That's why I am calling. I haven't any time to waste on loafers."

He asked the boy to take the card in again. This time he got in.

More than a hundred and seventeen billion matches were used in the United States last year. And a lot of men who got cigar lighters for Christmas can well believe it.

TOUGH ON NAILS

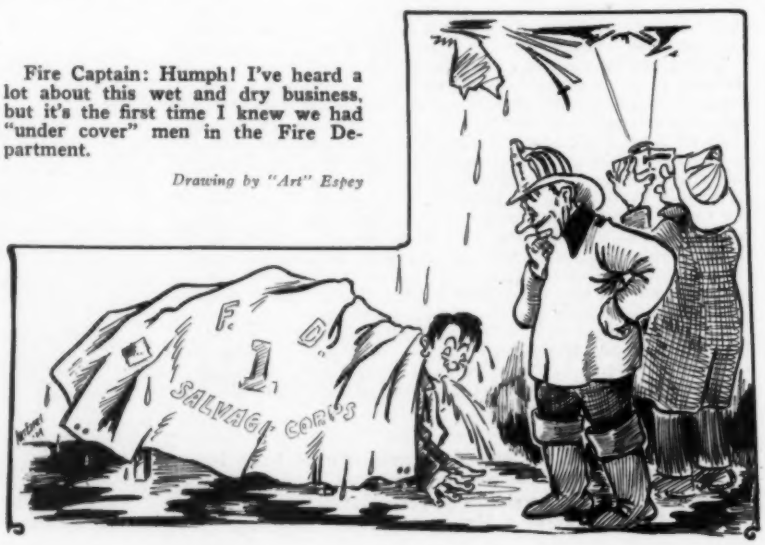
The butcher wasn't very keen for the fire company's business for the men who comprised it were very finnicky. He was always having trouble. A fireman who was sent to pay the weekly bill, could not miss the opportunity of having a word with the butcher.

"That was some steak you sent up yesterday. It was so tough the lieutenant said that he could sole the shoes with it."

"Well, why didn't he?" asked the butcher.

"The nails wouldn't go through."

City paving is always on the up and up.



Fire Captain: Humph! I've heard a lot about this wet and dry business, but it's the first time I knew we had "under cover" men in the Fire Department.

Drawing by "Art" Espey

MATHEWS

(Reg. U. S. Pat. Off.)

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HIGH PRESSURE
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Sand-Cast or "Sand-Spun"
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Salvage by Fire Departments

(*Continued from page* 54)

of water. The cost of replacing holes seven or eight inches wide and three or four feet long on each floor is trifling when compared to the amount of water damage often caused by such exposures.

Fire officers have been known to deliberately hold water from top floor fires until the salvage crops have entered the floors below and were in a position to catch the water used on the fire. It is understood, however, that these officers knew that they had their fire in hand and could kill it at their convenience; also that the fire loss caused by this delay would not compare with the water damage that would result from the immediate use of their stream.

Using Firemen to Carry Covers to Upper Floors

It is good practice for fire officers, particularly at sprinklered fires to order the members of the fire companies not otherwise engaged to carry covers to the upper floors when salvage men are being pressed and lack sufficient help. When it is considered that very frequently thousands of dollars can be saved by the application of a cover at the proper time and place, it can be readily understood how co-ordination of the available forces in the production of salvage is essential to efficient fire fighting.

In the Kimball Piano Company last January we put in 411 covers, in the piano room. Of course, we doubled the covers on some of the pianos. I think there were approximately half a million dollars' worth of pianos in that section of the building. There was probably four inches of water on the floor. The building being in sections, there were some sections that were not concerned in the fire or water because there were fire walls between each one of them. We moved those pianos to a dry room and removed the covers and when the loss was settled there was only one per cent by moisture. You can imagine the amount of salvage that was produced at that one fire, whereas if there hadn't been any tarpaulins and no salvage produced there would have a been a loss of half a million dollars—enough to run the fire department for a long time.

Salvage Work After Fires

The opportunity for salvage work after fires often presents itself. At a recent fire on an exceedingly cold day, involving the top floor of a four-story building, the roof was completely burned from the structure. A stock of grand pianos had been well covered on the third floor. Due to the moisture present, in spite of using squeegees on the floors, it was realized that the pianos would be ruined by the extreme cold and moisture. Steam pipes on the upper floors had been broken in several places. These were disconnected and the openings plugged. Window and floor openings were closed with tarpaulins. Steam was then sent to the floors below the fire, drying out the rooms with a consequent saving of stock.

The amount of salvage that can be accomplished after fires is also strikingly illustrated by a recent fire in a sprinklered wholesale furniture establishment. A large stock of desks packed in excelsior padding were piled on end directly on the floor. A fire occurred opening three heads and before the fire could be extinguished and the sprinklers shut off, about one or two inches of water had covered the floor, wetting the excelsior pads next to the floor. All exposed desks were taken from the pile; the excelsior wrappings removed and the desks wiped dry. Should they have remained in wet wrappings, it is evident that within a few hours the varnish would have turned white and glued parts weakened causing almost a total loss.

It is a frequent occurrence in the wholesale market district to cover up openings and maintain heat to protect fruits and vegetables from freezing after fires. Plumbing fixtures, tanks and boilers found in almost every building should always be drained when heating the building is impracticable.

Officers in charge of hook and ladder companies are learning ways of performing their duties in a workmanlike manner with a minimum of damage. The reckless smashing of doors and windows, the destruction of furnishings and stocks in tracing fires, the unnecessary or unworkmanlike opening of roof and skylights are being discouraged.

Efficient tools have been designed to open doors and windows and men have been trained in their use. Before pulling ceilings and side walls it is good practice to remove or cover stock and furnishings. When officers find it necessary to open a roof, one large, square, clean-cut hole is made in the proper place in preference to several small holes. This procedure results in a small repair cost and makes temporary covering a simple matter. These are methods by which fire departments are effecting a material reduction in the fire loss, but to practice salvage to the fullest extent cover work must be performed.

The first duty of the officer in charge of salvage operations upon arrival at an upper floor fire is to locate the exact position of the fire and to determine the amount of water that will be used by the engine company or companies. The salvage company will then commence operations directly below the fire as the water will be directed in that direction and quickly covering at that point is essential. If the officer decides that the fire will be controlled by one or two engine streams, immediately after covering the merchandise or household furnishings, he proceeds to "bag the floors" in preparation for an attempt to hold the water in covers by building them up at the ends. Thousands of gallons of water can be held to the floor below a fire in this manner.

Should the officer decide that it will be impossible to hold the water by that means, he will proceed to cover all floors below, calling for such assistance as may be necessary. As soon as covering has been completed he will make efforts to divert the water to elevator shafts, stairways or other vertical openings. Chutes of various kinds have been devised for diverting water through windows to the outside and in many cases such a procedure is good practice.

Knowledge of Merchandise and Equipment Involved Necessary

Salvage of property that has been exposed to fire requires a knowledge of the different kinds of merchandise and equipment and to what extent they are affected by fire or smoke or water and what precautions must be taken to guard against further damage. Salvage officers are being trained in that knowledge and are using it to good advantage. Inspection by fire department officers and fire prevention inspectors has been given considerable thought and is common practice in all cities. These inspections are generally made from the standpoint of fire prevention, control and extinguishment and little or no thought is given to the problem of salvage at fires.

Fire prevention inspectors and fire department officers should have a knowledge of the conditions which prevent efficient salvage operations at fires and make an effort to correct these conditions when found on their tours of inspection. Shelves and wall cases improperly constructed are the cause of large water losses. Shelves are frequently built to the ceiling directly against a wall, making it impossible to salvage unless such materials are removed. Water following the wall will wet the contents. Shelves should be constructed with back of wire netting about two inches from the wall, allowing a space of eighteen inches at the

When a Lone Tank Craves for More Freedom

The above is a photograph of the ruins that resulted when a still exploded in a building in Jersey City, N. J. The entire front of the building in which the tank was recently installed, was completely ripped out.

top to draw a cover over and down in the rear of the shelves for at least a few feet. Water following the wall will then pass harmlessly to the floor.

A salvage company is seriously hampered in its work when the tops of cases are covered with stock. It becomes necessary to remove such merchandise before the case can be properly covered. With time an important factor, a delay of this nature often results in unsatisfactory salvage work. Stock should never be piled on top of wall cases. Additional shelves should be constructed for that purpose. One of the most common obstacles to efficient salvage work is stock piled on the floors without skids of any kind. It is practically impossible to salvage the lower portions of such piles when large amounts of water are used in extinguishing the fire.

Basement Drains and Catch Basins Should Be Kept Free

In attempting salvage operations at fires, it is often impossible to locate basement drains and catch basins, particularly when the floor is covered with water. Stock is frequently piled upon them, making such drains and catch basins difficult to locate. This practice also makes it necessary to remove the stock directly over the drains and in many cases the removal of stock to make passageway to an aisle is necessary. The inspector should request that such drain be kept clear and that signs be hung on the ceiling showing their location. In sprinklered risks the shut-off valves should be plainly marked and in case dry valves are used, the telephone number of the engineer or other person responsible for the system should be plainly set forth so that the fire officer in charge can call his assistance in an emergency. The average business man has no knowledge of salvage work; his stock and fixtures are therefore arranged disregarding the serious consequences of water loss in the event of fire. Should they understand the operations of a salvage corps, they would arrange their stocks and fixtures in such a manner that salvage companies could efficiently protect them against water damage should the need arise. It is the duty of the fire department officials to enlighten the public and impress water damage prevention and control with fire prevention, control and extinguishment, in their inspection work.

Should Help Business Man to a Knowledge of Salvage Work

Many fire chiefs have maintained and still maintain that salvage production is a function for the insurance companies alone and that their work be only confined to the extinguishment of fires. Now, I don't think any reasonable person can agree with them for tthis reason: I maintain that the extinguishment of fire is the first step in salvage production and it is. There are times in Chicago—I don't know how it is in other big cities—I can find fault with them. You have five or six men on an engine company. They go up five or six floors, probably more. You will see a gang of truckmen going up with a pipe. They are dragging their insides out getting it up to the fire. If I was chief I would make it compulsory for every man that is going up a story to give the pipe men a hand with the line, for this reason—the sooner they get the site of the fire, the sooner the fire will be extinguished and the less water will be used, the quicker you will be back in service and further and more essential, you have created a sense of harmony among yourselves that will never be equalled.

(Excerpts from a paper read before the First Kansas Fire School, at Newton, Kan.)

Series of Explosions Destroy Trucks

A number of explosions that followed the outbreak of a fire in a motor service place in Oak Park, Ill., wrecked the building and destroyed thirty-nine trucks that were kept in it. The photograph shows what was left of the cars, after the fire.

Gamewell Arranges Banquet

The President's fifth annual dinner for employes of the Gamewell Company was held on December 19 at the Newton Centre Women's Club in Newton Centre, Mass.

There were 450 employes and their wives present at the banquet. Among the guests were William Gellatly, Chairman of the Board of Directors; A. D. Wheeler, Vice-President and District Sales Manager, and Chief Clarence R. Randlett, of the Newton Fire Department.

Group singing was carried on under the leadership of "Sandy" Chapman. The hall was decorated with Christmas trimmings. Fifty gifts, including a pair of live ducks, were distributed.

Fire Fought in Department Store

A remarkable stop of a very dangerous and threatening blaze in a large department store was made a few weeks ago by the fire department of Boston, Mass. The first alarm was received in the early evening and was a signal transmitted by the Boston Automatic Fire Alarm Company for the basement of the Shepard Stores on Winter Street.

The blaze was apparently caused by the friction of the shaft from a ventilating fan rubbing against a plank. This started a fire which spread from a point near the boiler room in the basement to stock stored on counters.

A sprinkler head went off and gave the alarm, but failed to check the fire, the flames spreading along the ceiling and mushrooming in a concealed space between the ceiling and floor of the first story.

When Engine Company No. 7 and Ladder Company No. 17 with Protective Company No. 2 reached the scene flames were apparent in the alley leading off Winter Street; the main floor was filled with dense clouds of smoke; and flames raging in the basement were starting to ascend by an elevator shaft and stairway to upper floors.

Three water lines and a chemical line were at once placed in action and District Chief John Watson ordered a bell alarm sounded to summon additional apparatus. More hose lines were run to the building through a revolving door which was knocked out on the Winter Street side. By a hard and quick fight the flames were checked before they had communicated to upper floors and other sections of the department store, which consists of a number of old buildings connected with one another. Deputy Chief Henry J. Power responded on the bell alarm and assumed command.

Ladder companies ventilated from the roof and opened windows of upper floors to minimize smoke damage. Two aerial ladders were raised in Winter Street. Delivery trucks and automobiles in the narrow street hampered department operations.

Much chopping of floors and overhauling was necessary to make sure that the spread of the fire between the floors had been checked.

The fire escaped newspaper publicity as it occurred in the height of the Christmas shopping season, only a few days before the holiday. Carpenters were set to work to repair the floor, a temporary partition was thrown up, and the store opened for business as usual the following morning.

Those who witnessed the fire consider that the extinguishment of this blaze with comparatively small damage was a most unusual stop of a fire of potentially great hazard, situated as it was in the heart of the downtown retail district and in a building loaded with holiday stock.

H. BELKNAP.

New Fire House Opened in Boston—Engine Company No. 29 and Ladder Company No. 11 are now installed in the new fire station that was recently completed in the Brighton section of Boston, Mass.

Boston Chiefs Receive Pay Increase—An increase of five hundred dollars a year in pay has been granted to the assistant chief, seven deputy chiefs, and thirty district chiefs of the Boston Fire Department.

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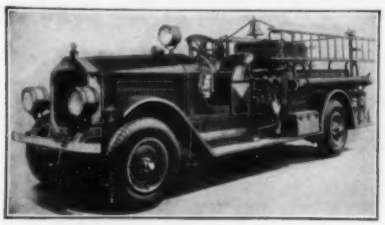

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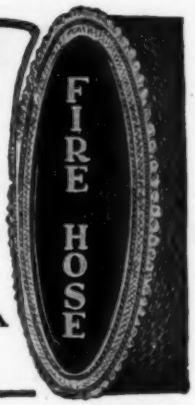

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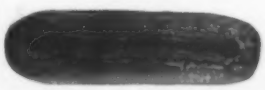

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82 Reviving Apparatus, Oxygen.
83 Rubber Clothing.
84 Searchlights.
85 Shingles, Fire Retardant.
86 Shirts, Firemen's Special.
87 Sirens, Apparatus & Chiefs' Cars.
88 Sliding Poles.
89 Soda & Acid Chemicals.
90 Spark Plugs, Fire Apparatus & Motorcyles.
91 Squad and other Auxiliary Cars.
92 Sprinkler Head Shut-Offs.
93 Sprinkler Supervisory Service.
94 Sprinkler Systems, Automatic, Foam.
95 Sprinkler Systems, Automatic, Water.
96 Starters, Fire Apparatus, Automatic, Air.
97 Steam Fire Engines.
98 Tarpaulins & Fire Blankets.
99 Tetrachloride Chemicals.
100 Thawing Equipment, Hydrant.
101 Tires, Fire Apparatus, Pneumatic, Solid, Cushion and Non-Skid.
102 Tractors.
103 Traffic Clearing Systems.
104 Triple Combination Pumping Cars.
105 Uniforms.
106 Water Towers.
107 Wheels, Cushion.
108 Whistles, Fire Alarm, Compressed Air
109 Whistles, Fire Alarm, Steam.
110 Whistles, Fire Apparatus.
111 Wrecking Trucks.

TEAR OFF HERE

FIRE ENGINEERING, 225 West 34th St., New York City.
As a fire protection official I should like to have descriptive literature and complete information mailed to me, without cost or obligation, on the equipment indicated by the following numbers:

Date.....

Nos. .....

Nos. .....

Nos. .....

Nos. .....

Name .....

Position .....

Street .....

City and State.....

For Information on Any Equipment Not Listed, Write on This Page or Use Separate Sheet

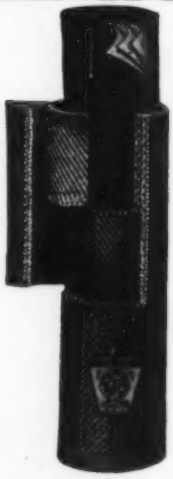
1-22

THE LIFE OF YOUR HOSE DEPENDS on the INTEGRITY OF ITS MANUFACTURER

FABRIC

Wax & Para Gum Treated Cotton
Rubber Lined

FIRE HOSE



THERE are many points of importance in the manufacture of good fire hose; points that demand care and the greatest skill. Here in our factory among the Connecticut hills are gathered a personnel of capable executives and workmen who's job is to see that you get dollar for dollar value out of Fabric Hose.

The mechanical process used in the manufacture of our hose is a process worthy of note if you buy hose from which you expect *exceptional service.* The threads are wax and para gum treated before they are woven, thereby insuring uniform toughness and absolute resistance to weather and water. *Fabric Hose will not rot — it is mildew-proof — pliable, strong, and durable.*

The wonderful acceptance of Fabric Hose by thousands of chiefs over a half century is gratifying evidence of the quality they get out of it. Fabric Hose will continue to be manufactured with sterling integrity. You can recommend and buy it with that thought in mind. *Write for our booklet* "Fire Hose and How It Is Made."

FABRIC FIRE HOSE CO.

9-15 Park Place, New York, N. Y.
124-126 W. Lake Street, Chicago, Ill.

Atlanta — Boston — Columbus — Dallas — Binghamton — Baltimore — Minneapolis — Portland (Ore.) — San Francisco — Los Angeles — Newark — Pittsburgh

ADVERTISING INDEX

Advertising Pays—in Fire Engineering

	PAGE
Aga Auto Lamp Co.	77
Ahrens-Fox Engine Co.	*Front Cover*
American District Telegraph Co.	77
American Fomon Company, Inc.	82
American-La France & Foamite Corp.,	*Inside Front Cover*
American Steam Pump Co.	52
Associated Business Papers, The	86
Bi-Lateral Fire Hose Co.	82
Body Guard Mfg. Co., The	81
Boyer Fire Apparatus Co.	81
Braxmar Co., C. G.	81
Buckeye Iron & Brass Works,	*Inside Back Cover*
Clay, Inc., John H.	81
Darling Valve & Mfg. Co.	50
Decot Machine Works	78
Eastman Co., Samuel	82
Eddy Valve Co.	82
Eureka Fire Hose Mfg. Co.	*Back Cover*
Fabric Fire Hose Co.	84
Fulton Bag & Cotton Mills	49
Hale Fire Pump Co.	78
Hedberg, J. N.	82
Hewitt Gutta-Percha Rubber Co.	82
Information for Buyers	**83**
Maxim Motor Co.	81
National Marine Lamp Co.	78
National Standard Threadless Coupling Corp.	82
Pirsch & Sons Co., Peter	82
Rensselaer Valve Co.	78
Stanley & Paterson, Inc.	47
Sterling Siren Fire Alarm Co.	51
Union Water Meter Co.	81
Wood & Co., R. D.	77
Woodhouse Mfg. Co.	81

When Ordering New Equipment

Patronize the Manufacturers You Find Listed Above

They are leaders in their respective lines and are in position to take the best possible care of your requirements.

The fact that they are using advertising space in FIRE ENGINEERING indicates they want your inquiries and will be glad to submit specifications and prices without placing you under any obligations whatever.

They are ready and anxious to serve you courteously in every way possible. Be sure to write them for complete information when considering new purchases—and place your orders with them.

They are helping us make the paper better by their advertising. You can help them and help us and help yourself by giving them your business. Let's all pull together! All will benefit.

The Publishers

CLACKETY-CLACK!

+ + + Printing *Wealth* + + +

WITH A WHIRR AND A CLATTER the pressroom swings into action. The floor trembles, the lights quiver, the moving maze of steel throbs in the rhythm of its own ponderous dance. A business paper is in the making. Great presses draw in at one end white paper and at the other end pour forth + wealth. For material possessions are not the only wealth of a people. Knowledge is a form of wealth + + knowledge of how to use men and materials and machines to create a wealth greater still. This knowledge + + which economists call fact-wealth, as distinct from material property + + is the wealth which begets wealth.

In the creation of fact-wealth modern business papers play a dominant part. Back of the roaring pressrooms as they pile up fact-wealth in printed form are the news staffs, gathering information at the source, and the editorial staffs, checking and correlating that information. For the business paper's knowledge must be correct + + its readers are experts; they are swift to detect error; they are prompt to appreciate fact. They follow both its reading and its advertising pages intently, for to them the business paper is a very real source of wealth.

As a creator of fact-wealth the modern business paper serves society; it serves its industry or trade; and it serves its individual readers. To this service it owes the honest circulation and the reader interest which make a good advertising medium.

ABP

THIS SYMBOL *identifies an ABP paper . . . It stands for honest, known, paid circulation; straightforward business methods and editorial standards that insure reader interest . . . These are the factors that make a valuable advertising medium.*

THE ASSOCIATED BUSINESS PAPERS, INC.

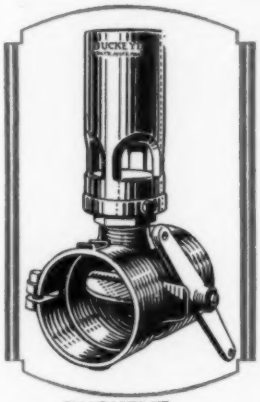
FIFTY-TWO VANDERBILT AVENUE · NEW YORK CITY

\+ + + + +

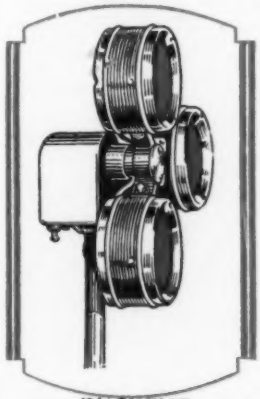
This publication is a member of the Associated Business Papers, Inc. . . a cooperative, non-profit organization of leading publications in the industrial, professional and merchandising fields, mutually pledged to uphold the highest editorial, journalistic and advertising standards.

Kindly mention FIRE ENGINEERING *when writing advertisers.*

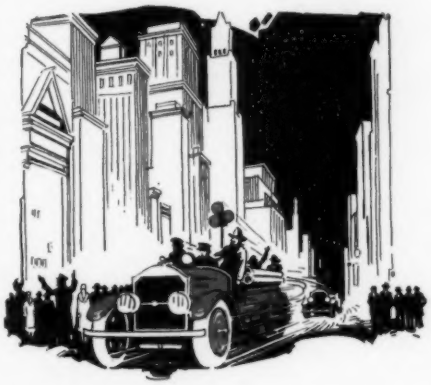
They can *HEAR* you and *SEE* you coming!



BUCKEYE WHISTLE



BUCKEYE "ROTO-RAYS"



THE Powerful Buckeye exhaust whistle is now standard in *more than Five Hundred* of America's leading Fire Departments.

It stands supreme in the warning signal field because it is the *only* emergency signal that has successfully met today's requirements.

In progressive cities where safety and efficiency are important factors you hear Buckeye whistles. There is a reason. Ask the Chief why.

BUCKEYE ROTO-RAYS, the three revolving red signal lights which instantly identifies the Fire Department after dark, is an ideal companion for any type of warning signal and it performs an extremely necessary service.

Its usefulness is quite apparent to alert fire department officials, for the movement of the lights is a distinctive feature possessed by no other signal, and which entirely eliminates the possibility of "Roto-Rays" becoming confused with any other type of signal or illuminated object. Many have been quick to recognize the *additional protection* which "Roto-Rays" afford their citizens, their firemen and their investment in expensive pieces of apparatus.

Safety is cheap at any price, and in Buckeye Whistles and "Roto-Rays" we are offering the *finest and most effective combination of warning signals in existence* at reasonable prices.

Buckeye Iron & Brass Works
326 East Third Street, Dayton, Ohio
It Pays to Use Warning Signals That Warn

BUCKEYE

EUREKA
FIRE HOSE

THE HOSE LINE IS THE SAFETY LINE!

Good Fire Hose protects firemen's lives—it is the safety line.

Good Fire Hose protects property. You can depend on any of the Eureka brands—famous for over 50 years as the standard by which all others are judged.

Eureka Fire Hose Manufacturing Company

50 CHURCH STREET, NEW YORK CITY

ATLANTA BOSTON CHICAGO COLUMBUS DALLAS DENVER DES MOINES DETROIT
KANSAS CITY LOS ANGELES MINNEAPOLIS NEW YORK PHILADELPHIA SEATTLE SYRACUSE